

**Cisco SFS 7008 InfiniBand Server Switch
Hardware Guide (Topspin 270 Hardware Guide)
Release 2.2.0 Update 1**

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Regulatory Notices

FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Safety Information

- [“Electrical Cautions” on page vii](#)
- [“General Cautions” on page ix](#)

Electrical Cautions



CAUTION: Use only the power cable provided with your Topspin system. Inspect the power cord and determine if it provides the proper plug and is appropriately certified for use with your electrical system. Discard the cord if it is inappropriate for your country’s electrical system and obtain the proper cord, as required by your national electrical codes or ordinances.



CAUTION: Grounding is supplied by the ground-prong on the 3-prong power cable. Do not attach a separate ground cable. Do not use adapter plugs. Do not remove the ground prong from the cable. Ensure the ground connection on the power supply is correct and functioning before applying power to the Topspin system.



CAUTION: Always ground yourself before touching any internal Topspin system component to avoid damage from electrostatic discharge (ESD).



CAUTION: The Topspin system has two power cables. The operator must disconnect all power cables before attempting to remove the system from the rack.



CAUTION: Remove power cables by grasping the cable connector and pulling straight out. If the chassis comes equipped with a power-plug retainer, move the bail wire used to retain the plug to the side before attempting to remove the power plug. Replace power-supply cables by grasping the cable connector, align the connector with the power jack, and insert the connector straight into the jack. If the chassis comes equipped with a power-plug retainer, move the bail wire back into place to keep the power plug firmly in place.



CAUTION: The Topspin system contains lithium batteries. Do not attempt to replace or discard these batteries. The batteries may only be serviced by Topspin service personnel.



CAUTION: Observe and follow service markings. Do not service the Topspin system, except as explained in the Topspin documentation supplied with your system. Opening the chassis or removing the enclosure cover exposes you to electrical shock and may damage system components.

If one or more of the following situations occurs, remove power to the Topspin system chassis, and contact your Topspin support representative:

- The power cable or power plug is damaged.
- The system has been exposed to water.
- The system has been dropped or damaged in any way.
- The system does not operate correctly after following the installation instructions.



CAUTION: You must ensure the operating environment has adequate air circulation. Keep the Topspin system in a cool, well-ventilated room. Do not block cooling vents. Install filler panels into all unused slots.



CAUTION: Never place your hand inside an empty card or module bay. You should never have cause to place a hand anywhere inside the Topspin chassis. Unused card and module bays should always have a Topspin cover over the bay to ensure proper safety, ventilation, and cooling.

General Cautions



CAUTION: No user is authorized to remove the Topspin system enclosure cover. The internal chassis contains no user-serviceable components. Removing the enclosure cover voids your warranty. See the warranty card for further details regarding the servicing of your chassis.

In general

- Do not spill food or liquids on your system components.
- Protect your Topspin system from sudden power-surges and interruptions by using a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Place cables appropriately so that they do not obstruct any egress within the data center and they do not block any ventilation inlets or outlets.
- Rack mount the Topspin chassis according to the rack manufacturer recommendations.

Contact Information

Table III-1: Customer Contact Information

Address	Topspin Communications, Inc. 515 Ellis St. Mountain View, CA 94043
Telephone, Corporate Headquarters	(866) TOPSPIN or (650) 316-3300
Fax	(650) 316-3269
Telephone, Technical Support	(800) 499-1473
Email, Technical Support	support@topspin.com
Web site, Support	http://support.topspin.com

Features Overview

The Topspin 270 Switched Computing System provides data center managers with a high-performance, low-latency interconnect.

- [“System Architecture” on page 11.](#)
- [“About the Topspin 270 Chassis” on page 13.](#)
- [“Administrative Features” on page 20.](#)

System Architecture

Hot Standby

On the Topspin 270, the inactive controller card remains on hot standby so that it can assume control in the event that the active controller card fails over. The hot standby feature lets the Server Switch fail over without rebooting or resetting any cards in the chassis.

You can access the hot standby controller card with a connection to the serial console port. A CLI session to the standby controller provides read-only access to the controller. You can view but not configure the card.

Because the hot standby features keeps both controller cards up, the **show card** command identifies the card on which your CLI session runs. In the command output, an asterisk identifies the controller card to which you are connected. In the example that follows, the CLI session applies to the controller card in slot 11 (the active card), as identified by the asterisk next to the slot number ([line 10](#)).

Example

```

1. Topspin-270# show card
2.
3.
4. =====
5.                               Card Information
6. =====
7.      admin                oper                admin  oper  oper
8. slot type                type                status  status  code
9. -----
10. 11* controllerFabric12x  controllerFabric12x  up      up    normal
11. 12  controllerFabric12x  controllerFabric12x  up      up    standby

```

The **oper code** field of the command output identifies the controller card as the active card (normal) or the hot standby card (standby). By default, when you power on a Topspin 270, the card in slot 11 becomes active and the card in slot 12 becomes the standby. The master and standby controllers automatically synchronize state and configuration information.

InfiniBand Connectivity

The Topspin 270 is an enterprise-class managed 960Gb/S, 6U InfiniBand (IB) Switch that is capable of supporting up to 96 4X ports.

In addition, the Topspin 270 is designed to support the 12x InfiniBand ports when they become available.

Flexibility

The architecture of the Topspin 270 offers flexibility in that the switch fabric modules are generic, and will assume the role of fabric controller or fabric node depending on the slot into which they are installed.

This increases the ease of replacing components because only one type of fabric card has to be stocked, and will become a controller or node, depending on what is needed.

Hi-Availability

Hardware

The Topspin 270 features hot-swappable and redundant:

- Power Supply Modules
- Fan Trays
- Line Interface Modules (redundant connection from HCA)
- Fabric Controller Modules (in redundant Core or Node slots)
- Management Interface module

The Topspin 270 features hot-swappable:

- Chassis ID

Ports

No failure on any single InfiniBand port will result in interruptions in service for any of the other ports.

Fabric

For redundancy, InfiniBand Host Channel Adapters (HCAs) can be dual-connected to a redundant pair of Topspin 270s.

In an InfiniBand fabric that includes more than one Topspin 270: if the subnet manager on the Topspin 270 that is acting as the master fails, another subnet manager will take over within seconds. All necessary state information is kept in sync.

Non-Blocking Architecture

The Topspin 270 provides non-blocking switch element architecture with full bi-directional bandwidth for the switch chassis.

About the Topspin 270 Chassis

An overview of the Topspin 270 hardware features are described in this section.

Diagram of the Chassis

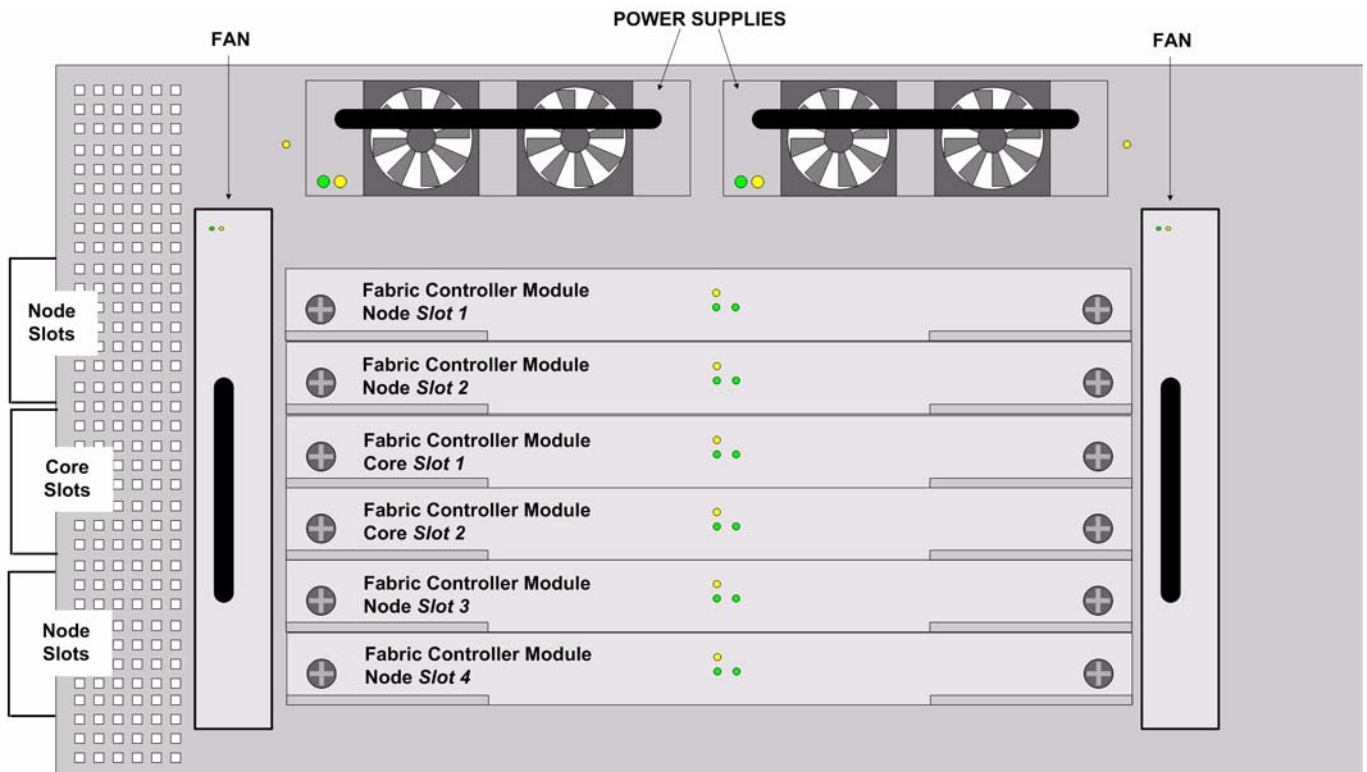


Figure 1-1: Front Chassis View without Bezel

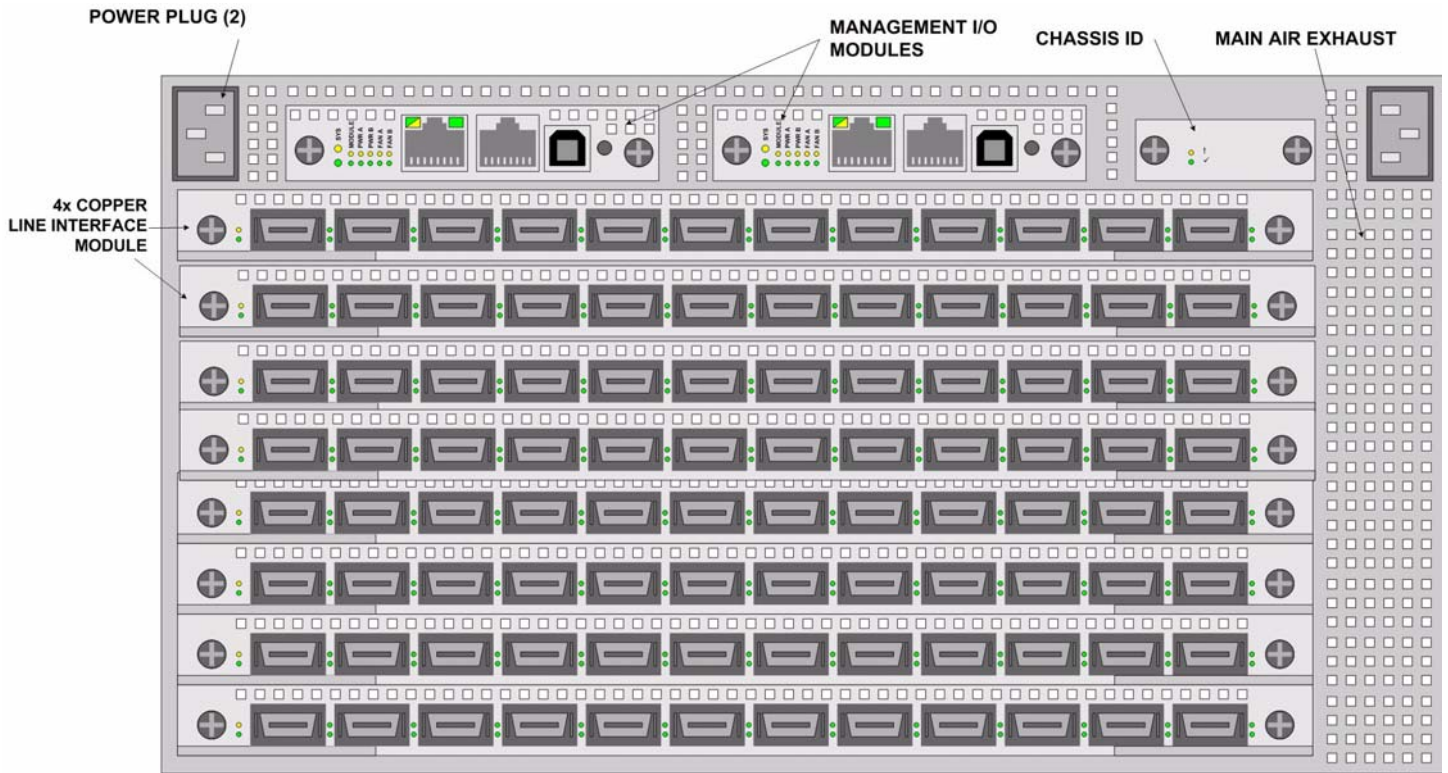


Figure 1-2: Back Chassis View

Chassis Slot Numbering

Slot numbers are printed on the chassis for easy identification.

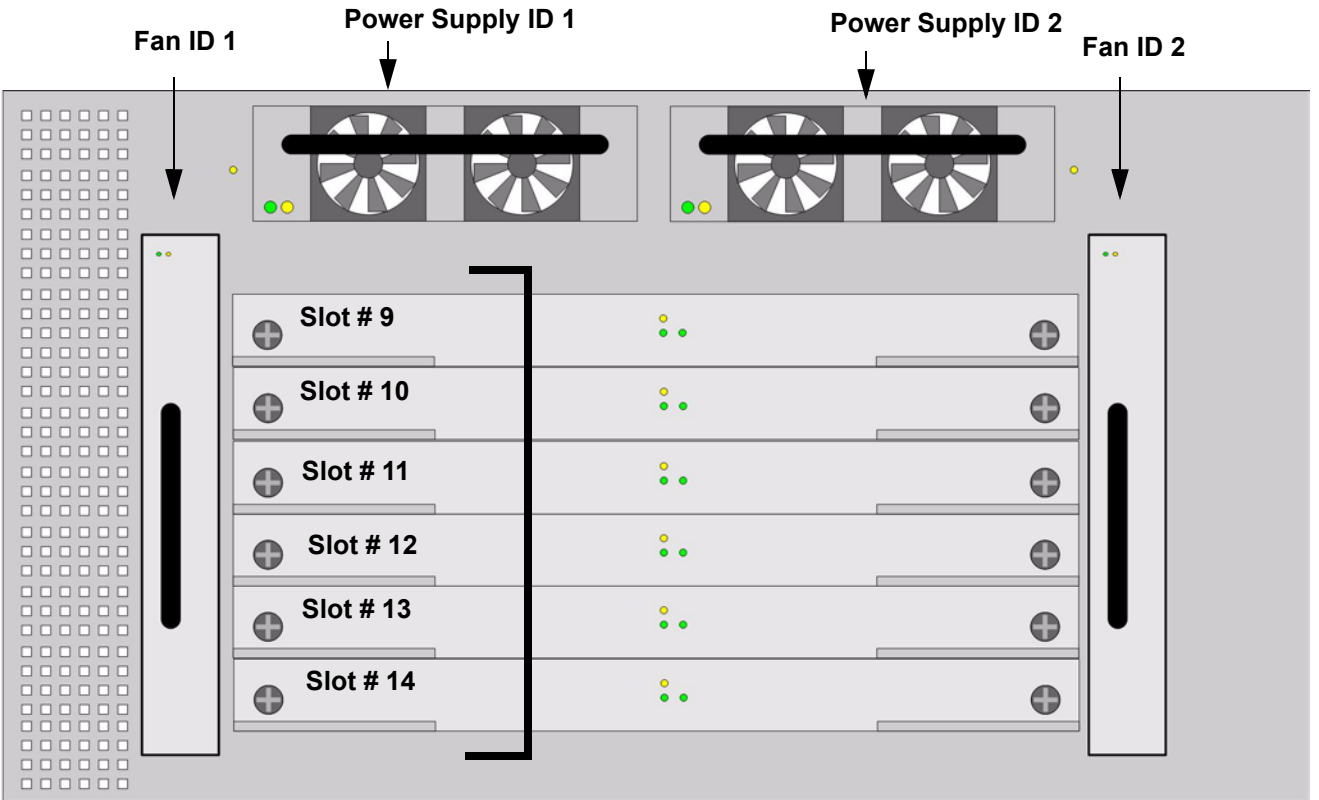


Figure 1-3: Chassis Slot Numbering in Front (Non-port Side)

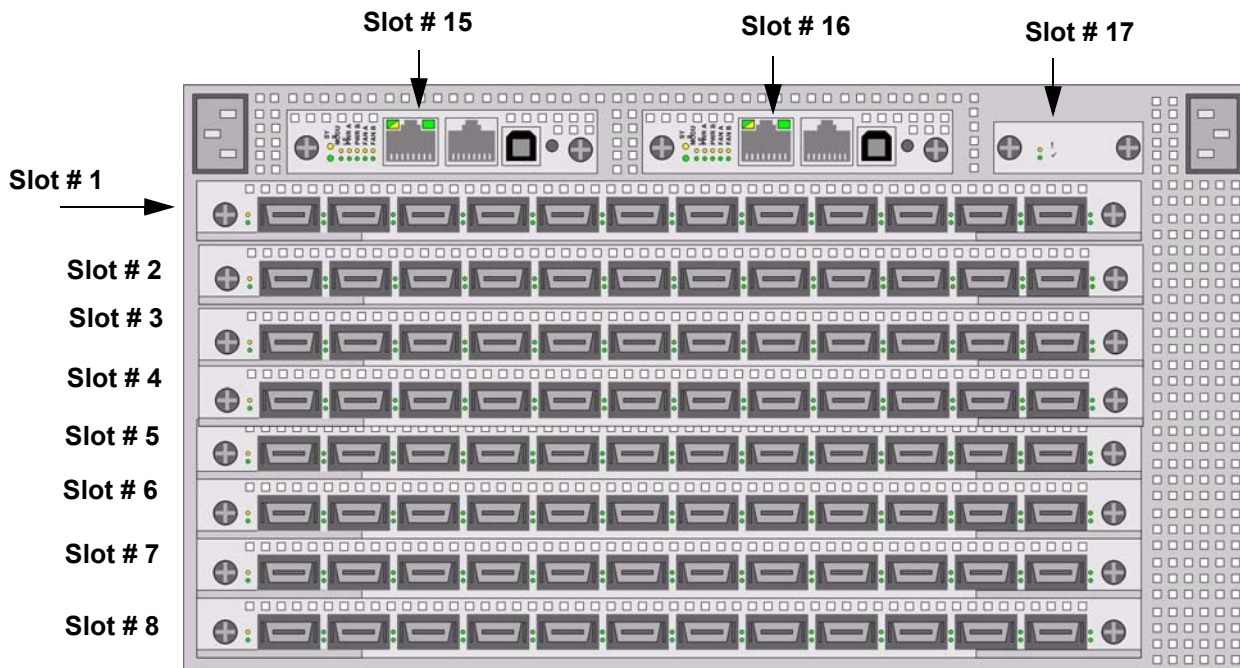


Figure 1-4: Chassis Slot Numbering in Back (Service Side)

Dimensions

- **Height:** 6U unit
- **Width:** 17.04”
- **Depth:** 8” - 23.7”
- **Weight:** maximum 106 pounds (full chassis configuration with 4x copper Line Interface Modules)

Connections

- 96 ports of 10 Gbps 4X Copper InfiniBand.
- Two 10/100 Ethernet RJ-45 Management-Ethernet ports for out-of-band management.
- Two RJ-45 Console Port used to configure and monitor the Topspin 270.
- Rack Alarm.

All cabling is on the rear of the chassis.

LEDs

LEDs are located on both the front and back of the chassis. Refer to [“Interpreting the Front Panel LEDs” on page 65](#) and [“Interpreting the Back Panel LEDs” on page 71](#) for more information.

Power Supplies

Refer to [“Installing a New Power Supply Module” on page 38](#) for installation instructions.

The Topspin 270 has two AC-DC bulk power supply modules.

- Only one power supply, in either of the two slots, is required to power the system. However, a blanking panel is required for any unused bay.

- The power supplies are 1U, 48V, 1200W
- The supplies provide regulated +48V DC to all other modules in the system.
- Each power supply has self contained fans for cooling.

Fan Trays

Refer to [“Installing a Fan Module” on page 41](#) for installation instructions.

The fan trays are redundant, hot-swappable cooling units.

- Only one fan tray, in either of the two slots, is required to cool the system. However, a blanking panel is required for any unused bay.
- The replacement of any one fan tray does not disrupt the operation of the device in any way, and can be successfully completed without having to remove the device from a rack, or disconnect any cables.
- The fan modules use DC Voltage regulators to control fan speed and contain a hardware fan control circuit, which controls and monitors the fan speed.
- The fan module will default to full speed after a power-on or reset condition.
- If one the fans fails, the redundant fan will go to full speed (if one is available).



CAUTION: The fan modules do not have guards. Do not remove a fan module completely from the bay until the blades have stopped moving (approximately 15 seconds).

Management Interface Modules

See [Figure 1-2 on page 14](#) for a diagram of the chassis.

Refer to [“Installing a Management Interface Module” on page 50](#) for installation instructions.

The Topspin 270 supports redundant, hot-swappable Management Interface modules, each of which is paired to one of the Fabric Controller Core modules.

The Management Interface modules provide the following functions:

- RS-232 serial console port
- 10/100 Ethernet management port
- System real time clock (RTC)
- Intra-system Ethernet switch, which provides a system configuration management data-path to all fabric modules.
- Provide mirrors of the LED indicators from the front side of the chassis for the power supply, fans, and over-all system status. (refer to [“Management Interface Module LEDs” on page 71](#)).
- Rack Alarm Connection (refer to [“Rack Alarm” on page 19](#)).

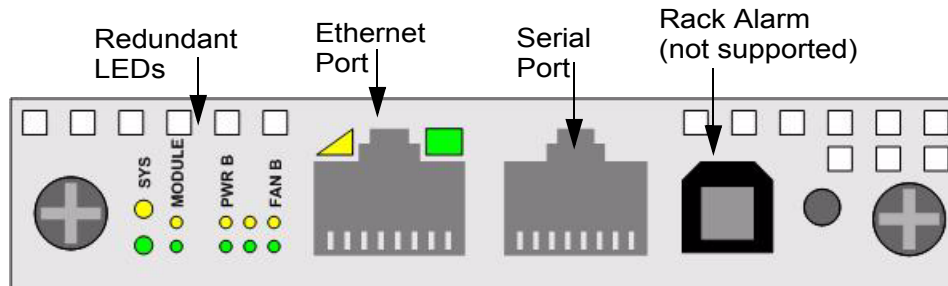


Figure 1-5: Management Interface Module

Understanding the Core Slot to Mgmt Interface Module Connection

Each Core slot in the chassis (refer to [“The Core Slot” on page 18](#)) is connected to 1 port on the Management Interface module. The controller (fabric interface module inserted in the core slot) selects the Management Interface module to which it will connect.

The pairing of Management Interface module to core slot is as follows:

- The Management Interface module in slot #15 is connected to the Fabric Controller Module in the Core slot #11.
- The Management Interface module in slot #16 is connected to the Fabric Controller Module in the Core slot #12.

For example, removing the Fabric Controller from the Core slot 11 would cause both the Fabric Controller card and its paired Management Interface module in slot 15 to fail-over. The new primary Controller would be slot 12 and the primary Management Interface would be slot 16.

Fabric Controller Modules

See [Figure 1-2 on page 14](#) for a diagram of the chassis.

Refer to [“Installing a Fabric Controller” on page 44](#) for Fabric Controller module installation instructions.

The Topspin 270 contains six fabric control modules.

The fabric controller modules perform the following roles within the system:

- System Controller
- Switch fabric spine
- Switch fabric end-nodes
- Stores redundant Vital Product Data (VPD) from the Chassis ID module. This allows the chassis to continue functioning (and the VPD information to be recovered) even if a Chassis ID module fails.

Each Fabric Controller module runs the management software and contains non-volatile storage.

The behavior and responsibility of each fabric controller module is determined by the type of slot into which it is inserted. Each fabric controller module can be installed in either a Node slot or a Core slot (refer to [“Node and Core Slots” on page 18](#)).

Master/Slave and Standby Roles

When the CPU of a fabric module detects that it is in a Core slot, it will arbitrate for system mastership and run system wide control functions in addition to its local management functions.

- One fabric controller in the Core slot acts as the Master
- One fabric controller in the Core slot acts as the Standby to the Master
- Fabric controllers in Node slots act as slaves
- Note: Fabric controllers in Node slots do not act in active/standby configuration

Node and Core Slots

The fabric controller modules can occupy either a Node slot or a Core slot in the chassis.

The Node Slot

There are four Node slots in the Topspin 270.

Fabric modules installed in Node slots provide fabric leaf switching, as opposed to controller functionality.

The Core Slot

There are two Core slots in the Topspin 270.

- At least one Fabric Controller module must be installed in the Core slot for the chassis to boot.
- When a module is installed in a Core slot, it acts as either the master or standby controller for the chassis, with all modules in the system being slaves to the master controller.
- The subnet manager runs on the fabric module installed in the Core slot that has arbitrated to be the master.
- The Core slot module also acts as the switch fabric spine, interconnecting the end-nodes.

Each Core slot is connected to 1 of 2 ports on the Management Interface module.

The pairing of core slot to Management I/O module is as follows:

- The Fabric Interface Module in the Core slot #11 is connected to the Management I/O module in slot #15 .
- The Fabric Interface Module in the Core slot #12 is connected to the Management I/O module in slot #16.

Line Interface Modules (LIM)

Refer to [“Installing a LIM Module” on page 48](#) for installation instructions.

The Topspin 270 has hot-swappable Line Interface Modules (LIMs), which are installed in the rear of the chassis; this is opposite of the fabric modules (see [Figure 1-2 on page 14](#)). The LIMs provide the physical InfiniBand port interfaces and are 4x over copper. The number of LIMs in your Topspin 270 chassis depends on your particular configuration.

Chassis ID Module

The chassis ID module is hot-swappable, and is located on the rear of the chassis (see [Figure 1-2 on page 14](#)).



Figure 1-6: Chassis ID Module

How the Chassis ID is Used

Upon initial boot-up of the Topspin 270, the Chassis ID is read by the system, and the unique information is populated to the rest of the chassis.

The Chassis ID module contains model and serial number information, and logs certain error information. Refer to [“Vital Product Data Storage” on page 20](#).

About Replacing a Chassis ID Module

In the event that a Chassis ID module must be replaced, the replacement module will arrive with your previous serial number and GUID. When a Chassis ID module is installed, the new Chassis ID is detected. This allows your chassis to maintain the same identification and GUID.

Rack Alarm

The Rack Alarm (also referred to as the Rack Locator) feature is supported with release 2.2.0 and later.

Administrative Features

Real-Time Clock

The Topspin 270 maintains correct time regardless of power conditions or connectivity.

Latency

The Topspin 270 has port to port latency of less than 600ns.

Non-Volatile Memory

The memory supports up to:

- three stored system images (not including recovery image)
- one week of log files at normal verbosity; and one day of log files at maximum verbosity

Vital Product Data Storage

Vital Product Data (VPD) is stored in non-volatile memory in the Chassis ID module (refer to [“Chassis ID Module” on page 19](#)) and the Fabric Controller that is installed in the Core slot (refer to [“Fabric Controller Modules” on page 18](#)), and is available electronically. Some VPD info can be accessed via CLI, the Java GUI, or the Web GUI.

The following Vital Product Data can be recovered by returning a Field Replaceable Unit to the original manufacturer. Note: This requires the appropriate support contract.

- Power on hours
- Manufacturing part number
- Serial number
- Final test date
- Card ID
- Failure code
- Failure date
- Operation status
- Failure log
- OEM part number

Diagnostics

Refer to [“About Diagnostic Tests” on page 89](#) for more detailed information.

The following tests are run to determine operational status:

- Power On Self Test (POST) is performed on all system components during power on to determine operational readiness.
- Redundant components' operational status is ensured periodically during normal operation, including the logic required to perform the transition from faulted/primary to redundant component. Detection of abnormal status is reported.

Installing the Topspin 270 System

This chapter describes how to install and manage the Topspin 270 system hardware.

- [“Prepare the Site” on page 21](#)
- [“Configure Basic Connectivity” on page 28](#)
- [“Mount the Topspin 270 Chassis in a Rack” on page 22](#)
- [“Connect Network Devices” on page 30](#)
- [“Manage the System” on page 31](#)

Prepare the Site

This section provides information that you need to safely and successfully prepare your environment for your Topspin 270. Read this section carefully before you install your device.

Read the Cautionary Statements

Refer to the [“FCC Statement” on page vii](#) and the [“Safety Information” on page vii](#).

Prepare the Physical Environment for the Topspin 270 System

- Make sure you have the right cables and sufficient ventilation.
- Unpack the Topspin 270 package.
- Prepare a management workstation, such as a PC running a terminal program, and a straight-through M/F DB-9 serial cable (included).

Mount the Topspin 270 Chassis in a Rack

This section describes how to install the Topspin 270 chassis in an equipment rack. The following procedure is the standard installation, using your own rack shelf.

Topspin also has an optional shelf that is appropriate for pre-racking and shipping a unit in the rack. If you have purchased this shelf unit separately, refer to the documentation that is provided in the shelf kit package.

Requirements

In addition to the accessories provided with the server switch, you should have:

- #2 phillips screwdriver
- Rack with 6Us of available space
- Shelf installed in the rack (not provided). The shelf must support the weight of the chassis, which can be up to 106 pounds with all possible components installed.
- Screws appropriate to your rack, which are used to secure the rack handles to the rack posts.
- Three people are recommended to lift the switch into the rack; however, the procedure can be performed by two people.

Note: The Topspin 270 chassis weighs up to 106 pounds (fully loaded).

Rack Mount Installation

To mount the Topspin 270 chassis in a rack:

1. Remove the CD-ROM, parts bag, and documentation from the box.
2. Remove the packaging from around the chassis.
3. Install a shelf for the chassis, if you have not already done so. Verify that the shelf can support the weight of the chassis, which can be up to 106 pounds with all possible components installed.



Figure 2-1: Install Appropriate Rack in Shelf

4. Determine the direction that the switch will be installed and justified in the rack. The direction that the switch will be justified will determine which set of rack ears that need to be removed.
5. Use a #2 phillips screwdriver to remove one set of rack ears:
 - If you have determined that the switch will be justified toward the front of the rack, then use a #2 phillips screwdriver to unscrew the rack ears from the *back* of the switch.
 - If you have determined that the switch will be justified toward the back of the rack, then use a #2 phillips screwdriver to unscrew the rack ears from the front of the switch.



Figure 2-2: Unscrew Extra Rack Ears from the Chassis

6. Separate the rack ears from the chassis when all screws have been loosened.

7. Use 2 - 3 people to lift the switch into the rack.



Figure 2-3: Chassis Set onto Shelf

8. Push the chassis into the rack until the rack ears are flush with rails.

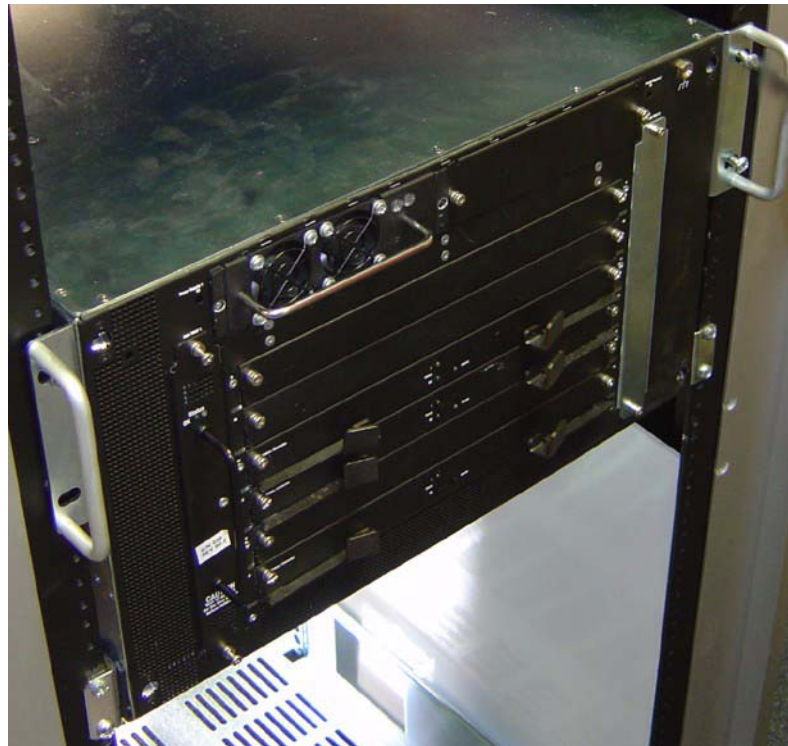


Figure 2-4: Rack Ears Flush with Rails

9. Use screws that fit your rack to attach both rack ears to the rack rails.

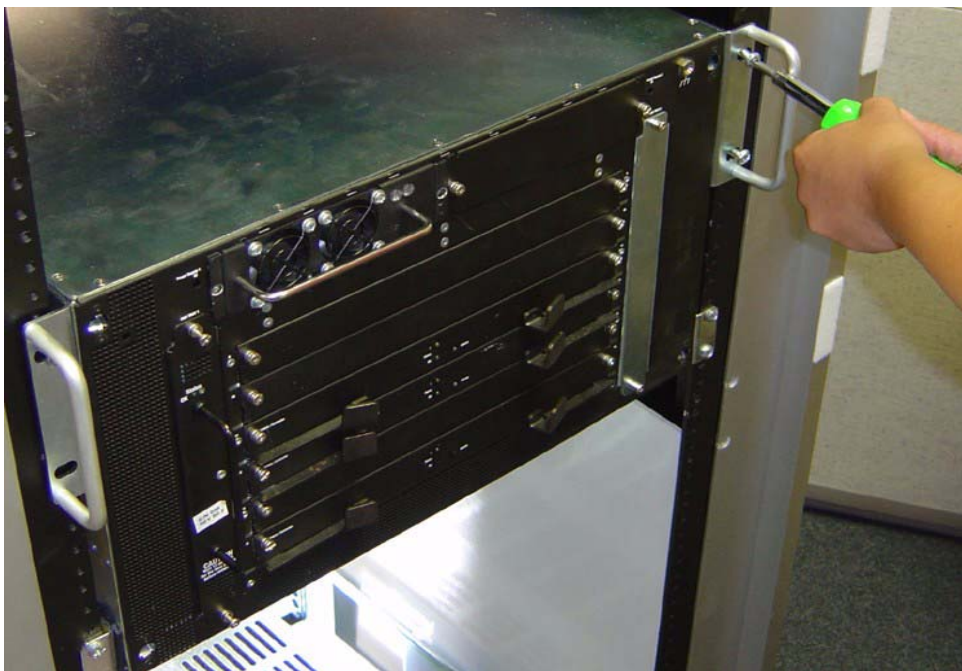


Figure 2-5: Use Appropriate Screws to Attach Rack Ears to Rails

Install Optional HA Components

If you have purchased a High-Availability (HA) package, install the following components:

- Redundant Power Supply. Refer to [“Power Supply Modules” on page 35](#).
- Redundant Fan Tray. Refer to [“Fan Tray Modules” on page 39](#).
- Redundant Management Interface Module. Refer to [“Management Interface Modules” on page 49](#).

Connect Management Devices

To connect the management ports, use either a serial cable and/or an Ethernet cable.

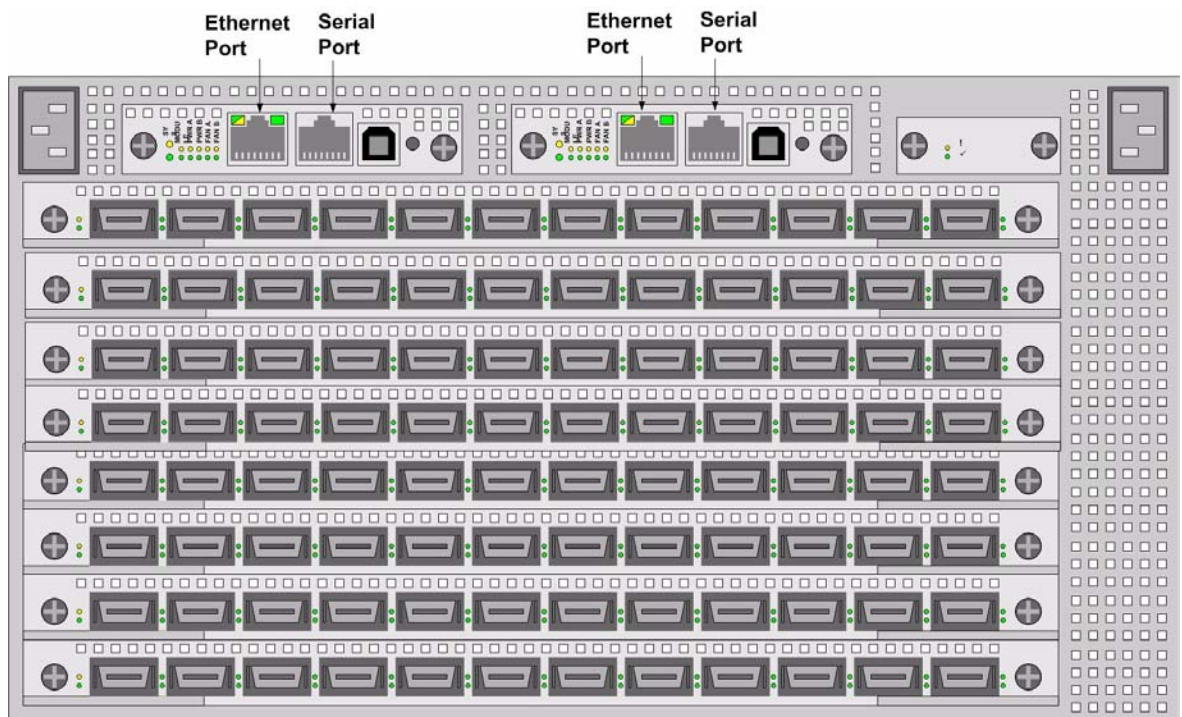


Figure 2-6: Serial and Ethernet Management Ports

Attach a Serial Console Cable to a PC or Terminal

1. Attach the RJ-45 console cables from the cable kit that is provided. See [Figure 2-7](#).
 - a. Connect the cables to the InfiniBand chassis serial console port on the Management Interface card.

If you have two Management Interface cards, make sure that you connect to the left Management Interface module (slot 15), which will be the primary Management card upon initial boot-up. The serial console port is labeled “10101.”

- b. Connect the other end of the serial cable to your terminal server or management workstation.

For detailed information on how to connect the serial console cable, please see the documentation included with the serial cable kit.
2. Open a terminal emulation window using a program such as HyperTerminal for Windows. Set your terminal parameters to the following:
 - Baud: **9600 bps**
 - Data Bits: **8**
 - Parity: **None**
 - Stop Bits: **1**
 - Flow control: **None**

Connect an Ethernet Cable to the Ethernet Management Port

3. Connect an Ethernet cable to the Ethernet port of the left Management Interface module (slot number 15). See [Figure 2-7](#).
 - a. If you have two Management Interface modules, you may also want to connect an Ethernet cable to the standby module (slot 16) to maintain Ethernet connectivity in the event of a fail-over.

Recommended Management Configuration

The diagram below shows the recommended management port connections. To have constant access to the chassis remotely, redundantly connect the serial ports on two Management Interface cards to a terminal server.

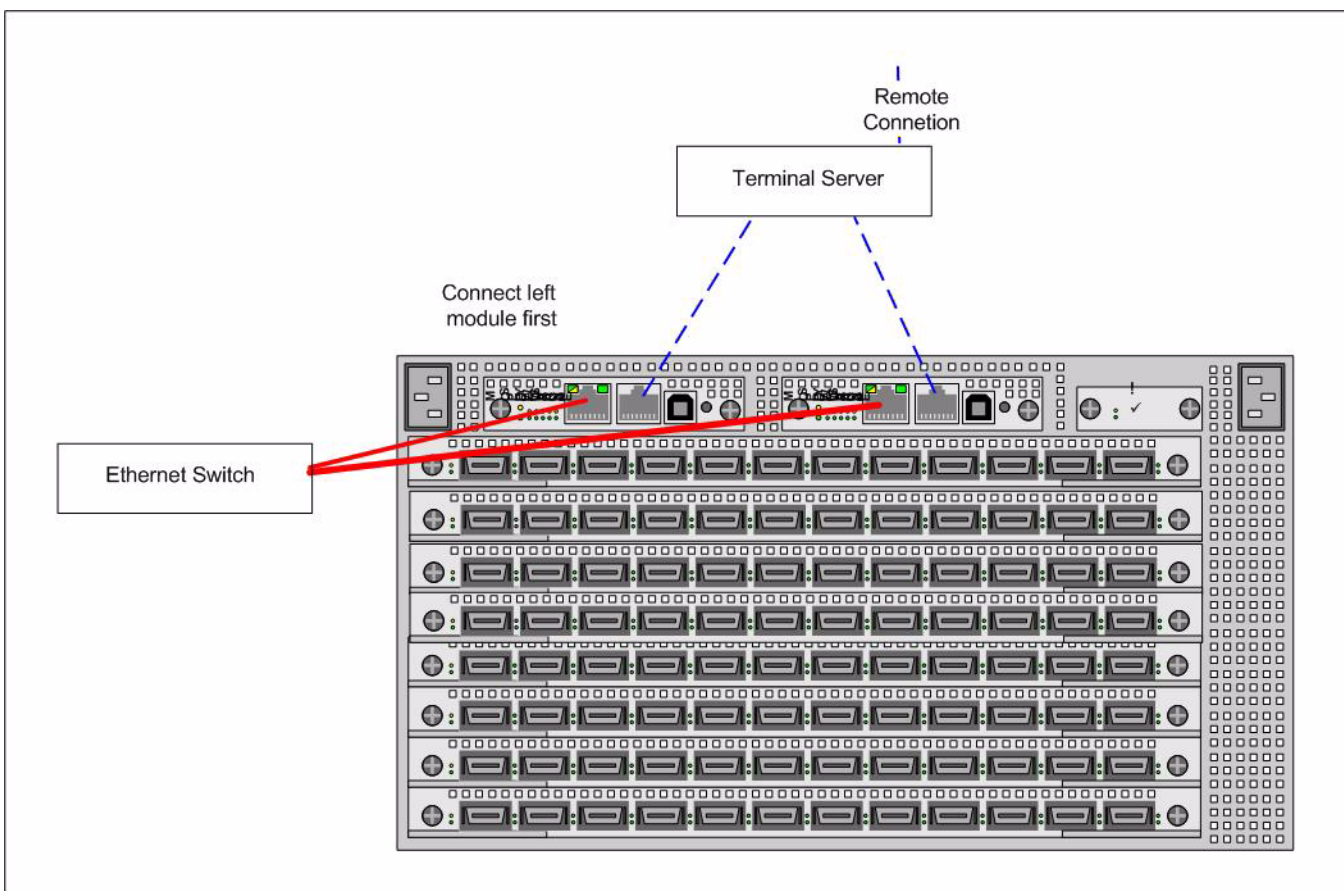


Figure 2-7: Recommended Management Configuration

Power on the Chassis

Use only the power cable provided with your InfiniBand system.

4. Remove the power cords from the shipping package.

One power cord UL rated 12 Amps/125 VAC or greater is provided by default. If you have a high-availability unit, you will have a second power cord.

5. Inspect the power cord and determine if it provides the proper plug and is appropriately certified for use with your electrical system. Discard the cord if it is inappropriate for your national electrical system and obtain the proper cord, as required by your national electrical codes or ordinances.

Grounding is supplied by the ground-prong on the 3-prong power plug. Do not attach a separate ground cable. Do not use adapter plugs. Do not remove the ground prong from the cable. Ensure the ground connection on the power supply is correct and functioning before applying power to the chassis.

6. Insert the power cords to the power jacks on the rear of the chassis. If you only have a single power cord, insert it into the left receptacle.

Refer to [Figure 2-8](#) for power jack locations.

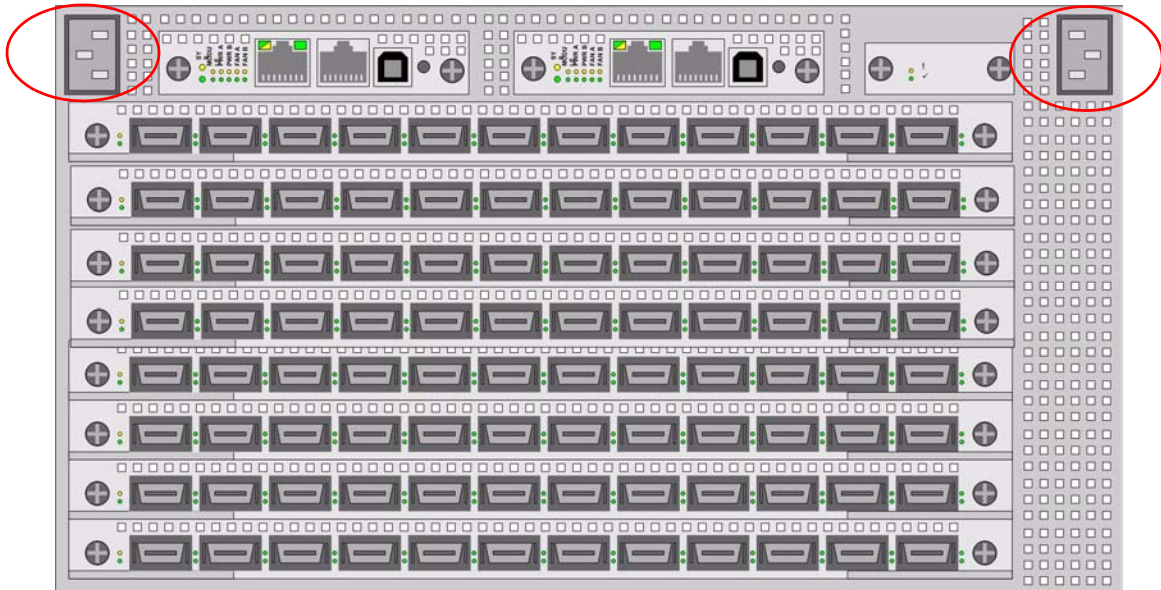


Figure 2-8: Power Jack Locations

7. Plug the other end of each AC power cable into a 90-264VAC power outlet operating at 47-63Hz. Attach the chassis only to approved power sources, as indicated by the electrical ratings label. If you are unsure of the correct power-source to use, contact your support personnel or your local power company.
The chassis automatically starts and boots. You can watch the running status via the serial console. Use the correct external power-source.
8. Check the LEDs on the front of the Topspin 270 system. When the system first powers up, it performs a power-on self test (POST). Refer to [“System-Wide Status LED”](#) on page 66.
You will know that the system has completed the boot process when you see a login prompt.

Configure Basic Connectivity

1. Configure an IP address for the Ethernet Management port.

It is necessary to configure connectivity to the out-of-box Ethernet management port in order to use Telnet, the Web GUI, or the Java GUI. The system is not pre-configured when it ships from the factory.

IP addresses can be assigned statically (which is the default), or dynamically assigned using DHCP.

- [“Assigning an Address Statically”](#) on page 29
- [“Assigning an Address Dynamically”](#) on page 29

Assigning an Address Statically

Refer to the static example below:

- a. When the system has completed booting, press <Enter> several times to display the CLI prompt.

```
Login:
```

- b. Enter the user name and password. The default user name is **super**, and the default password is **super**.

```
Login: super
Password: super
Topspin-270>
```

- c. Enter the **enable** command.

```
Topspin-270> enable
Topspin-270#
```

- d. Enter the **configure** command.

```
Topspin-270# configure
Topspin-270 (config)#
```

- e. Enter the **interface mgmt-ethernet** command.

```
Topspin-270 (config)# interface mgmt-ethernet
```

- f. Enter the IP address of the management port followed by the netmask.

```
Topspin-270 (config-if-mgmt-ethernet)# ip address 10.10.0.22
255.255.255.0
```

- g. Set the default gateway for the management port. For example:

```
Topspin-270 (config-if-mgmt-ethernet)# gateway 10.10.0.1
```

- h. Enable the management port by entering the **no shutdown** command.

```
Topspin-270 (config-if-mgmt-ethernet)# no shutdown
```

- i. Save the configuration to preserve it between reboots.

```
Topspin-270 (config-if-mgmt-ethernet)# exit
Topspin-270 (config)# exit
Topspin-270# copy running-config startup-config
```

- j. If you have two Fabric Controllers installed in Core slots, you will receive a message asking if you want to save the configuration to the Standby Controller.
Answer **Yes** to save the configuration across both controllers.

Assigning an Address Dynamically

- a. When the system has completed booting, press <Enter> several times to display the CLI prompt.

```
Login:
```

- b. Enter the user name and password. The default user name is **super**, and the default password is **super**.

```
Login: super
Password: super
Topspin-270>
```

- c. Enter the **enable** command.

```
Topspin-270> enable
Topspin-270#
```

- d. Enter the **configure** command.

```
Topspin-270# configure
Topspin-270 (config)#
```

- e. Enter the **interface mgmt-ethernet** command.

```
Topspin-270 (config)# interface mgmt-ethernet
```

- f. Enter the **option dhcp** command. The chosen method will be persistent across module reboots.

```
Topspin-270 (config-if-mgmt-ethernet)# option dhcp
```

- g. Enable the management port by entering the **no shutdown** command.

```
Topspin-270 (config-if-mgmt-ethernet)# no shutdown
```

- h. Save the configuration to preserve it between reboots.

```
Topspin-270 (config-if-mgmt-ethernet)# exit
Topspin-270 (config)# exit
Topspin-270# copy running-config startup-config
```

If you have two Fabric Controllers installed in Core slots, you will receive a message asking if you want to save the configuration to the Standby Controller.

- i. Answer **Yes** to save the configuration across both controllers.

Connect Network Devices

This section describes how to connect the InfiniBand system to other network devices. InfiniBand devices can be connected to InfiniBand-enabled servers.

About Connectors

The Topspin 270 device supports the following types of connectors:

- Management ports:
 - Serial console port: male DB-9 connector.
 - Ethernet Management port: RJ-45 jack for unshielded twisted-pair connections.
- Switch card: 4X 10 Gbps InfiniBand connectors.

Connecting InfiniBand Devices

Attaching the IB Cable to the IB Port

To connect using InfiniBand to other workstations or switches, standard 4X InfiniBand cables are required. InfiniBand cables can be used to connect any two InfiniBand devices, whether switch or host.

1. Plug InfiniBand cables into the InfiniBand switch ports.

To plug in an InfiniBand cable, push the connector into the interface until you hear/feel a click.

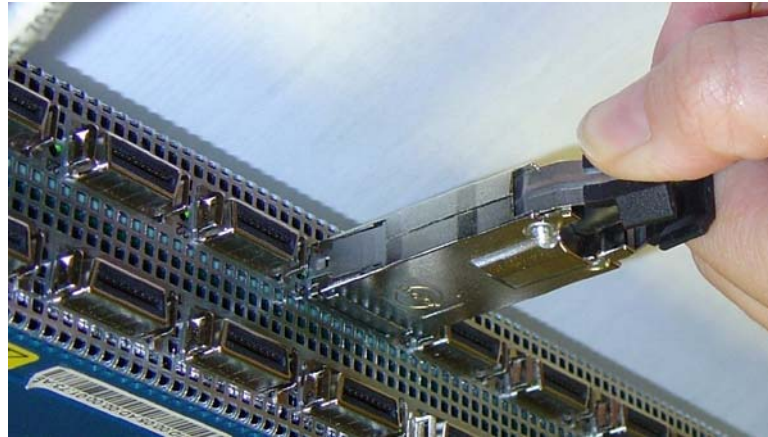


Figure 2-9: Removing a Pinch Connector

- a. If the IB cable is already connected to an IB host, the physical LED light will turn green on the switch IB port when connected properly.
- b. To remove a cable with a pinch connector, pinch both sides of the back of the connector and pull the connector away from the port.

Connecting to the Host

The opposite end of the InfiniBand cable will most likely be connected to an InfiniBand-enable host (refer to the *HCA Installation Guide*).

If your host does not provide an ample amount of free space around a given IB port, double-check that your IB cable connector engages fully. Wiggle your connector back and forth to be sure that both sides of the connector have locked firmly into place.

Connecting to a Router or Switch

To connect directly to an Ethernet switch/router or a Fibre Channel switch, you must add a Topspin device with the optional Ethernet or Fibre Channel gateway (such as the Topspin 90 or Topspin 360) to your fabric.

Connecting Multiple IB Switches

Two InfiniBand systems (such as a Topspin 120 and a Topspin 270) can be connected by an InfiniBand cable inter-switch link (ISL).

Manage the System

You can manage the InfiniBand server-switch system using the following methods:

- Command Line Interface (CLI) - a text-based interface accessible through a direct serial connection, Telnet over IP, or SSH over IP.

- Chassis Manager (GUI) - A web-based graphic user interface.
- Element Manager (GUI) - An optionally available graphic interface installed on a workstation, and accessible over IP.

Refer to the *InfiniBand User Guide*, the *CLI Reference Guide* or the *Chassis Manager User Guide* for more information about managing the InfiniBand systems.

(Optional) Launch the Chassis Manager

Chassis Manager is a web-based GUI that can be used to manage a single InfiniBand chassis.

Prepare Your Device

To launch Chassis Manager on your Topspin 270, you must:

- Configure an IP address on the Ethernet management port, if you have not already done so.
- Configure an IP gateway on the Ethernet management port, if you have not already done so.
- **Optional.** Enable Telnet services (should be enabled by default).
- **Optional.** Enable HTTP or HTTPs services (HTTP should be enabled by default).

If you followed the previous steps, you should already have these items configured. If your device meets these requirements, proceed to [“Launch Chassis Manager” on page 32](#). Otherwise, to prepare your device, perform the following steps:



NOTE: Consult your network administrator for an IP address, subnet mask, and gateway address before you begin this process.

1. If you have not yet configured an IP address for the Management port, refer to [“Configure Basic Connectivity” on page 28](#).
2. Enter the **telnet enable** command in global config mode to start telnet services on your device. You may need to use the **exit** command to return to global config mode.

Example

```
Topspin-270> enable
Topspin-270# configure
Topspin-270 (config)# telnet enable
```

3. Enter the **ip http server** command to enable HTTP services on your device. HTTPs is also supported.

Example

```
Topspin-270 (config)# ip http server
```

Launch Chassis Manager

To launch Chassis Manager, perform the following steps:

1. Launch your Web browser.
Chassis Manager supports the following browsers
 - Microsoft Internet Explorer version 6
 - Netscape Navigator version 6
 - Mozilla version 1.4

2. Type the Management IP address of your Server Switch in the address field of your browser and press **Enter**. (You configured the IP address in [Step f](#).)



Figure 2-10: Web Browser Window

A log-in window opens. [Figure 2-11](#) displays the log-in window.

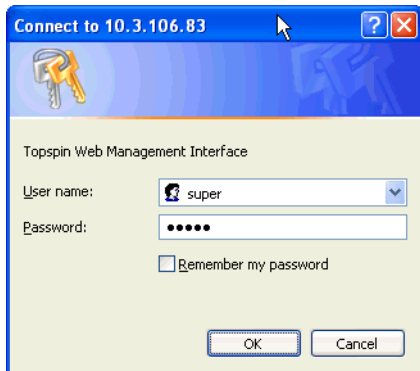


Figure 2-11: Chassis Manager Log-In Window

3. Enter your Server Switch user name and password in the log-in window and click the **OK** button. Chassis Manager loads in your browser window.

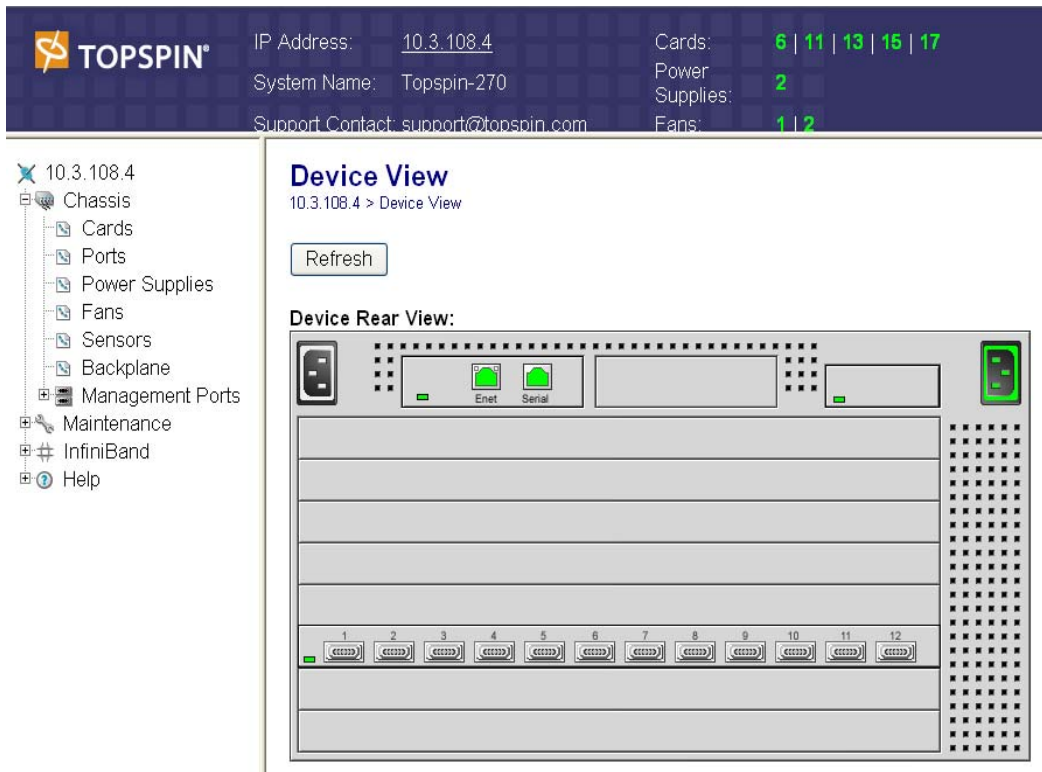


Figure 2-12: Chassis Manager Opening

(Optional) Install the Element Manager GUI

For more information regarding the Element Manager tasks, refer to the *InfiniBand User Guide*.

1. Check that you have sufficient system resources. You will need:
 - 32 MB free RAM
 - 50 MB disk space + 50MB additional temporary space during installation
 - 300 Mhz processor
 - 800x600 screen resolution, 16bit color depth
2. Insert the Topspin CD-ROM into the CD-ROM drive of a server that has network access to a Topspin management port.
3. The GUI can be found in the following location on the CD-ROM.
 - Linux/install_linux_ia64.bin
 - Linux/install_linux_x86.bin
 - Windows/install.exe
 - Solaris/install_solaris_sparc.bin
4. Run the installation wizard:
 - a. On Windows, double-click install.exe.
 - b. On Solaris and Linux systems, enter `sh ./install_yourOS.bin`.
 - c. Follow the on-screen instructions.
 - d. Enter location and preference information as requested by the installation program.
6. Start the Element Manager.

Managing Individual Components

This chapter describes how to install the Field Replaceable Units (FRUs) in the Topspin 270 system.

About the Field Replaceable Units

The following Field Replaceable Units (FRUs) are a part of the Topspin 270 chassis:

- [“Power Supply Modules” on page 35](#)
- [“Fan Tray Modules” on page 39](#)
- [“Fabric Controllers” on page 42](#)
- [“Line Interface Management Modules \(LIM\)” on page 45](#)
- [“Management Interface Modules” on page 49](#)
- [“Chassis ID Modules” on page 50](#)

Power Supply Modules

About the Power Supply Modules

The Topspin 270 power supply units are hot-swappable. Only one power module is necessary to power the unit; however, two power supplies are recommended for redundancy.

You can add a second module without powering off the chassis. If you have two power supply units installed, you can remove one of them without removing power from the chassis.

About a Failed Power Supply

If you believe a power supply module has failed, contact technical support.

Do not remove a failed power supply unless you have a new power supply to install immediately, or a blanking panel to place over the open bay as overheating may occur.

In most cases, vital information can be recovered from the failed module. If you have the appropriate support agreement, you may want to return the unit for diagnosis. Refer to [“Vital Product Data Storage” on page 20](#).

Locating the Power Supply Module

Both power supply units are located on the front of the chassis. When facing the front of the switch with the bezel cover removed, the power modules are located in the top center bays of the Topspin 270 chassis. Refer to [Figure 1-1](#) for a diagram of the chassis.

Removing a Power Supply Module

Caution: Do not remove a Power Supply module without first loosening the screws with a phillips screw driver.

1. Ground yourself appropriately.
2. Verify that you have a means of covering the slot before removing the module. Do not remove a failed power supply unless you have a replacement or a blanking panel to install in its place, as overheating may occur.
3. Make sure you have a #1 phillips screwdriver to disengage the fasteners.
Never place your hand inside an empty card or module bay. You should never have cause to place a hand anywhere inside the Topspin 270 chassis.
4. Remove the bezel cover from the front of the switch.
5. Locate the power supply that you want to remove. Refer to [“Power Supply LEDs” on page 67](#).
If you have two power supply modules installed, you can remove one of them without removing power from the chassis. However, before removing a power supply, make sure that the redundant power supply has the corresponding power cord installed. Each power supply is supported by a the power cord that is directly behind it on the chassis.
6. Determine the power cord that is linked to the power supply module you want to remove. The power cord and its corresponding power supply are situated in tandem, on the same half of the chassis.



CAUTION: Make sure you do not remove the power cord of the functioning power supply.

7. Pull the power cord from the chassis.

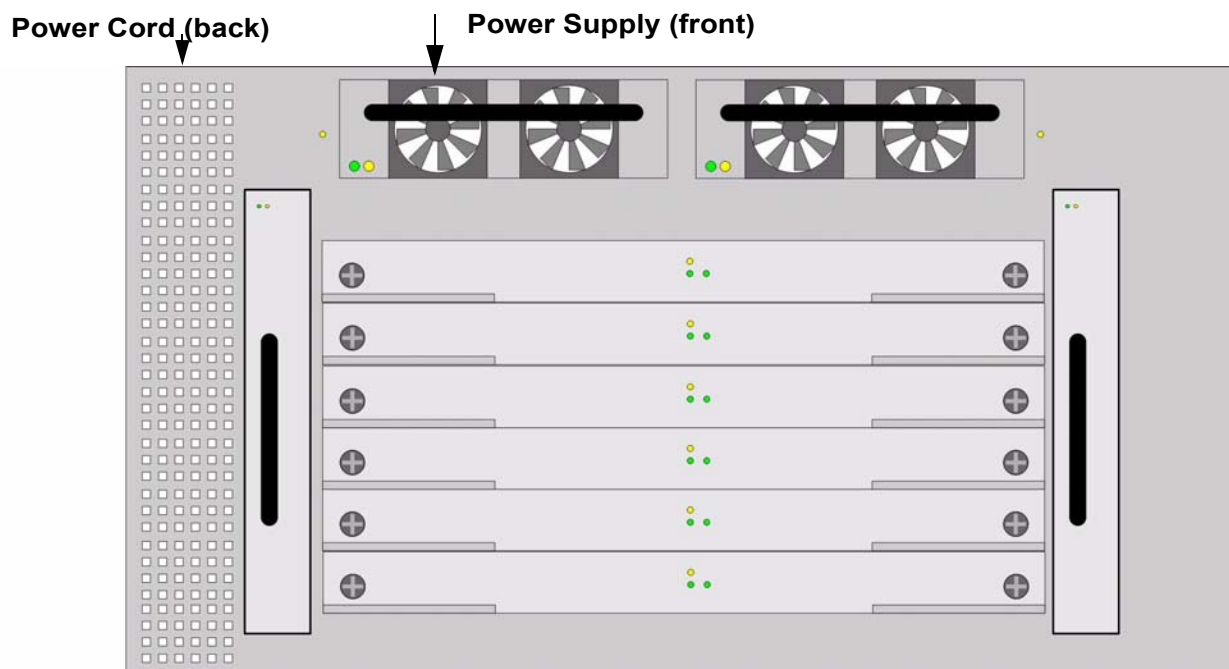


Figure 3-1: Diagram of Power Supply to the Associated Power Cord

8. Use a #1 phillips screwdriver to unscrew the fasteners that hold the power supply module in place.



Figure 3-2: Loosening Captive Screws

9. Use the handle to pull the power supply module from the bay.



Figure 3-3: Pulling the Power Supply Module from the Bay

10. Install the blanking panel in place of the power supply module. The device should never be run without either a blanking panel or module in any bay, as overheating may occur.

or

Install a new Power Supply module. Refer to [“Installing a New Power Supply Module” on page 38](#) if you are installing a new Power Supply module.

Installing a New Power Supply Module

Caution: Never place your hand inside an empty card or module bay. You should never have cause to place a hand anywhere inside the Topspin 270 chassis.

To insert a power supply unit:

1. Remove the new power supply from the package.
2. Ground yourself appropriately.
3. Insert the Topspin-provided power cord into the receptacle, if one is not already connected and plug it into a power-source.

The power cord receptacles are located on the back of the chassis. Each power cord receptacle controls the power supply that is closest to it (on the same end of the chassis).

4. Remove the bezel cover from the front of the switch, if you have not already done so.
5. Refer to [“Removing a Power Supply Module” on page 36](#), if a power supply is still in the bay.
6. Remove the blanking panel from the power supply bay with a #1 phillips screwdriver, if it is still in place.

7. Insert the new power supply unit into the open slot until it is fully seated. You may need to push the unit with your thumbs to get it completely into the bay.



Figure 3-4: Inserting Power Supply Module

8. Secure the captive screws with a #1 phillips screwdriver.
9. Check the LEDs on the power supply to verify the status of the module. Refer to [“Power Supply LEDs” on page 67](#).

Fan Tray Modules

About the Fan Tray Modules

Refer to [“Fan Trays” on page 17](#) for more information about the fan tray modules.

About a Failed Fan Tray

If you believe a fan module has failed, contact technical support.

Refer to [“Fan LEDs” on page 69](#) and [“Interpreting the Fans Tab” on page 85](#) for monitoring information.

Locating the Fan Tray

Both fan modules are located on the front of the chassis. When facing the front of the switch with the bezel cover removed, the fan modules are located in the left and right receptacles of the Topspin 270 chassis. The slots are labelled on the chassis.

Refer to [Figure 1-1](#) for a diagram of the chassis.

Removing a Fan Module

Note: Do not remove Fan module without first loosening the screws with a phillips screwdriver.

1. Ground yourself appropriately.
2. Verify that you have a means of covering the slot before removing the module. Do not remove the module unless you have a replacement or a blanking panel for the slot, as overheating may occur.
3. Remove the bezel cover from the front of the switch, if you have not already done so.

4. Use a #1 phillips screw driver to unscrew the captive screws.



Figure 3-5: Loosening Captive Screws

5. Carefully *begin* to pull the fan tray 1” out of the bay. Do *not* pull the fan tray completely from the bay.



CAUTION: The fan tray does not have guards over the blades. You must wait until the fan blades have stopped moving before completely removing the fan tray from the bay, or risk injury.

6. Wait 15 seconds to allow the fan blades to stop moving.



Figure 3-6: Partially Removing Fan Tray

7. Pull the fan tray completely out of the bay.
8. Install the blanking panel in place of the fan module. Only one fan module is required to run the switch; however, the device should never be run without either a blanking panel or module in any bay, as overheating may occur.

or

Install a new fan module. Refer to [“Installing a Fan Module” on page 41](#) if you are installing a new fan module.

Installing a Fan Module

1. Remove the new fan module from the package.
2. Ground yourself appropriately.
3. Remove the bezel cover from the front of the switch, if you have not already done so.
4. Refer to [“Removing a Fan Module” on page 39](#), if a module is still in place.
5. Remove the blanking panel, if no fan module was in place.
6. Align the fan module with the bay and slide the module into the bay.



Figure 3-7: Pushing Fan Module into Slot

7. Push the module until it is firmly in place.
8. Use the #1 phillips screw driver to tighten the captive screws.



Figure 3-8: Tightening Captive Screws

9. Check the LEDs on the fan module to verify the status. Refer to [“Fan LEDs” on page 69](#).

Fabric Controllers

About the Fabric Controllers

Refer to [“Fabric Controller Modules” on page 18](#) for more specific information about this module.

About a Failed Fabric Controller

If you believe a fabric controller module has failed, contact technical support.

Refer to [“Fabric Controller LEDs” on page 70](#) and [“Monitor the Cards” on page 79](#) for monitoring information.

Locating a Failed Fabric Controller

The fabric controllers are located on the front of the chassis, behind the bezel cover. Refer to [Figure 1-1](#) for a diagram of the chassis. The slots are labelled on the chassis.

Considerations Before Removing a Fabric Controller Card

Before removing a fabric controller card from either a node or a core slot of the Topspin 270, keep the following in mind:

1. The fabric controllers cards in the core slots are paired to the Management Interface modules on the other side of the chassis.
 - Fabric controller card in slot 11 is paired to the Management Interface module in slot 15.
 - Fabric controller card in slot 12 is paired to Management Interface module in slot 16.

Therefore, before removing a fabric controller from a core slot, make sure that the second pairing of Fabric Controller/Management Interface module is intact.
2. Removing the fabric controller in the core slot that is currently acting as master will cause a fail-over to the standby pair of fabric controller/Management Interface modules.

It takes up to 3 seconds for the standby fabric controller to become a new master.

 - a. If you are removing a fabric controller card from a node slot, the card will be located in slots 9, 10, 13, and 14 (marked on the chassis).
 - b. If you are removing a fabric controller card from a core slot, the card will be located in slots 11 or 12.

Removing a Fabric Controller

1. Ground yourself appropriately.
2. Verify that you have a means of covering the slot before removing the module. Do not remove the module unless you have a replacement or a blanking panel for the slot, as overheating may occur.
3. Remove the bezel cover from the front of the switch.
4. Determine whether the Fabric Controller you want to remove is installed in a Core slot or a Node slot. Refer to [Figure 1-1](#) for a diagram of the chassis.

If you are removing a Fabric Controller from one of the core slots, make sure that the redundant core Fabric Controller is functional.

Removal of the Fabric Controller currently acting as master will cause a fail-over. It takes up to 3 seconds for the standby fabric controller to become a new master.

5. Use a #1 phillips screwdriver to unscrew the captive screws from both ends of the Fabric Controller card.

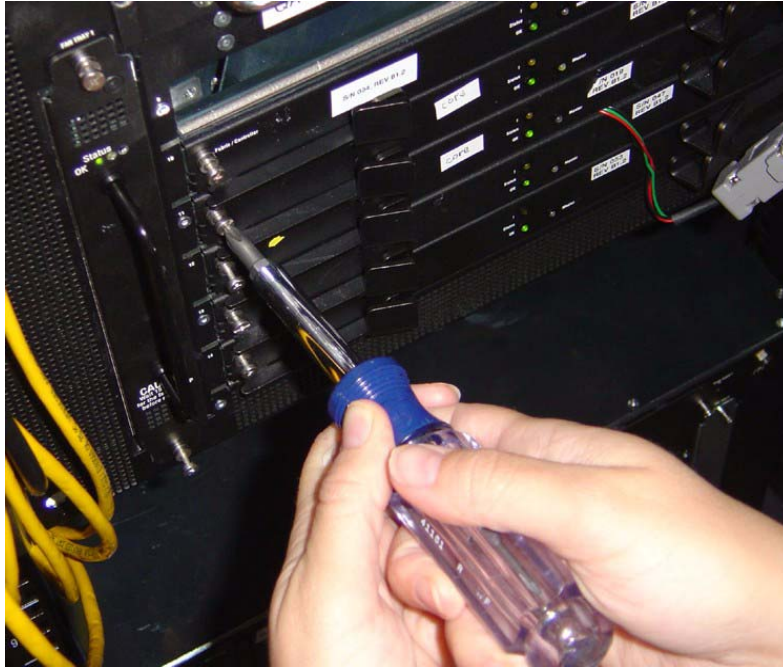


Figure 3-9: Loosen Captive Screws Before Removing

6. Pull the levers on both sides of the card toward you. The card will be released.



Figure 3-10: Opening Fabric Card Levers

7. Use the levers to pull the card toward you and remove it from the bay.
8. Place a blanking panel over the open bay. No bay should ever be run without a blanking panel or a module installed, as overheating may occur.

or

Refer to [“Installing a Fabric Controller”](#) on page 44 to install a new fabric controller.

Installing a Fabric Controller

1. Remove the new Fabric Controller module from the packaging.
2. Ground yourself appropriately.
3. Remove the bezel cover, if you have not already done so.
4. Refer to [“Removing a Fabric Controller” on page 42](#), if a Fabric Controller module is still installed.
5. Remove the blanking panel, if no fabric controller was previously installed.
6. Align the new Fabric Controller module with the bay into which you want to install it.
7. Gently push the Fabric Controller module into the bay as far as you can.
8. When the module is nearly completely installed, press the levers in toward the Fabric Controller until they are flat against the module.
9. Check the LEDs on the Fabric Controller module and the chassis to verify the status. Refer to [“Fabric Controller LEDs” on page 70](#).
10. Tighten the captive screws on both ends of the Fabric Controller module.



Figure 3-11: Tight the Captive Screws

11. Refer to [“Upgrading the Controller Card” on page 44](#).

Upgrading the Controller Card

It is likely that the image version on the new Fabric Controller card will not match the firmware on the rest of the chassis. After the new Fabric Controller module has been installed, upgrade the firmware on the chassis and the new Fabric Controller will be upgraded automatically.

The version of the firmware is verified during the upgrade process. If a module does not need to be upgraded, the module will be skipped and move on to the next module.

The image can be upgraded with the following methods

- [“Upgrade the Image with the CLI” on page 45](#)
- [“Upgrade the Image with the Chassis Manager” on page 45](#)
- [“Upgrade the Image with the Element Manager” on page 45](#)

Upgrade the Image with the CLI

To upgrade the image of the Controller card with the Command Line Interface, refer to [“Upgrading a Controller Card with the CLI” on page 57](#) and the following document:

- *CLI Reference Guide*

Upgrade the Image with the Chassis Manager

To upgrade the system image with the Chassis Manager web GUI, refer to the following document:

- *Chassis Manager User Guide*

Upgrade the Image with the Element Manager

To upgrade the system image with the optionally licensed Element Manager GUI, refer to the following documents:

- *Element Manager User Guide*

Line Interface Management Modules (LIM)

About LIM Cards

Refer to [“Line Interface Modules \(LIM\)” on page 19](#) for specific information about the LIM modules.

About a Failed LIM Module

If you believe a line interface module has failed, contact technical support.

Refer to [“LIM Status LEDs” on page 75](#) and [“Monitor the Cards” on page 79](#) for monitoring information.

Locating a Failed LIM Module

The Line Interface Management modules are located on the back of the chassis. Refer to [Figure 1-2](#) for a diagram of the chassis.

Removing a LIM Card

1. Ground yourself appropriately.
2. Verify that you have a means of covering the slot before removing the module. Do not remove the module unless you have a replacement or a blanking panel for the slot, as overheating may occur.

3. Remove the InfiniBand cables from the ports.
 - a. To remove a cable with a pinch connector, pinch both sides of the back of the connector and pull the connector away from the port.

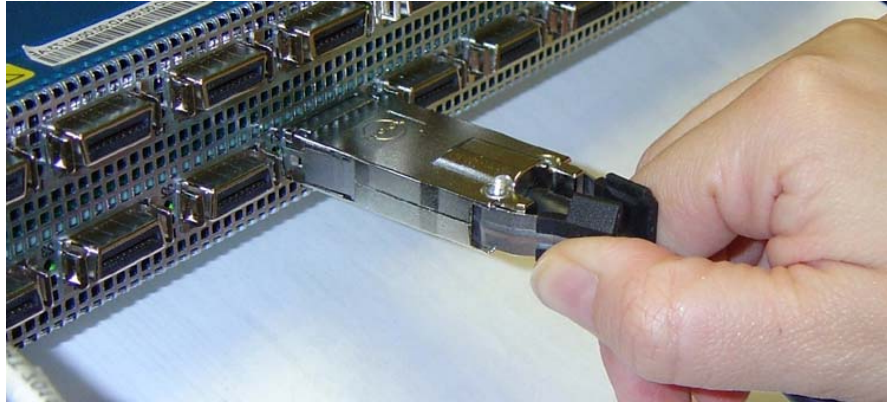


Figure 3-12: Removing a Pinch-Type Connector

- b. To remove a cable with a pull connector, grasp the connector with one hand and push it *toward* the port, then pull the latch away from the port with your other hand and gently wiggle the connector away from the port.

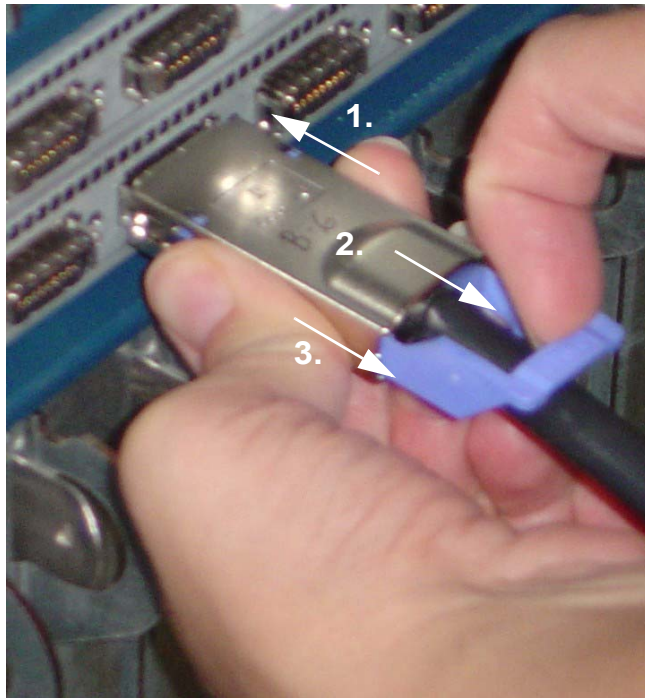


Figure 3-13: Removing a Pull-Type Connector

4. Use a #1 phillips screwdriver to unscrew the captive screws on both sides of the LIM card.



Figure 3-14: Loosen the Captive Screws

5. Release the LIM module by pulling both levers toward you, then toward the outside of the chassis.



Figure 3-15: Releasing the LIM Module Levers

6. Use the levers to pull the module from the bay.



Figure 3-16: Pulling a LIM Module from the Slot

7. Install a blanking panel in place of the LIM module, or refer to [“Installing a LIM Module” on page 48](#) for instructions on replacing the LIM module.

Installing a LIM Module

1. Remove the new LIM module from the package.
2. Refer to [“Removing a LIM Card” on page 45](#), if a LIM module is still in place.
3. Ground yourself appropriately.
4. Remove the blanking panel if a LIM module was not currently in place.
5. Align the LIM module and slide it into the bay as far as possible. The module will not go into the bay completely without closing the levers.
6. When the LIM module is nearly installed in the bay, press the levers in toward each other.

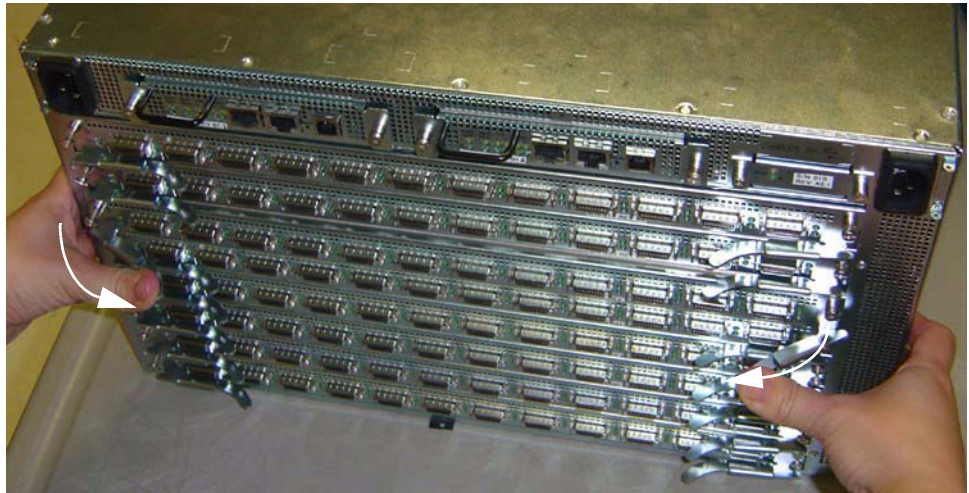


Figure 3-17: Closing the LIM Module Levers

7. Check the LIM status LED to determine that the module is functioning properly. Refer to [“LIM Status LEDs” on page 75](#).
8. Tighten the captive screws on both ends of the LIM card.



Figure 3-18: Tighten the Captive Screws

9. Connect the InfiniBand cables to the ports.
 - a. To plug in an InfiniBand cable, push the connector into the interface until you hear/feel a click. Check the InfiniBand port LEDs to determine the status of the port. Refer to [“InfiniBand Port LEDs” on page 75](#).

Management Interface Modules

About Management Interface Modules

Refer to [“Management Interface Modules” on page 17](#) for additional information.

About a Failed Management Interface Module

If you believe a Management Interface module has failed, contact technical support. Management Interface modules are hot-swappable.

Refer to [“Management Interface Module LEDs” on page 71](#) and [“Monitor the Cards” on page 79](#) for monitoring information.

Determining Which Management Interface Module has Failed

The Management Interface modules are located on the back of the chassis. Refer to [Figure 1-2](#) for a diagram of the chassis. The slots are labelled on the chassis.

Removing a Management Interface Module

1. Verify that you have a method of covering the slot before removing the module. Do not remove the module unless you have a replacement or a blanking panel for the slot, as overheating may occur.
2. Determine if the Management Interface module that you are removing is currently connected to the master fabric controller.

Note: The removal of the “Master” Management Interface module will trigger a fail-over of the Fabric Controller module. Switch traffic will be disrupted. If the system is left without a Management Interface card, the switch will become inoperative.

If the “Master” LED is lit, then the module is connected to the master fabric controller module, and a fail-over will occur when you remove the management interface module. The system will fail to the redundant management interface module and the redundant fabric controller module.

3. Ground yourself appropriately.
4. Unplug any Ethernet management or serial cables that are connected to the ports of the Management Interface module.
5. Use a #1 phillips screwdriver to unscrew the Management Interface module.
6. Use the handle to pull the module from the bay.

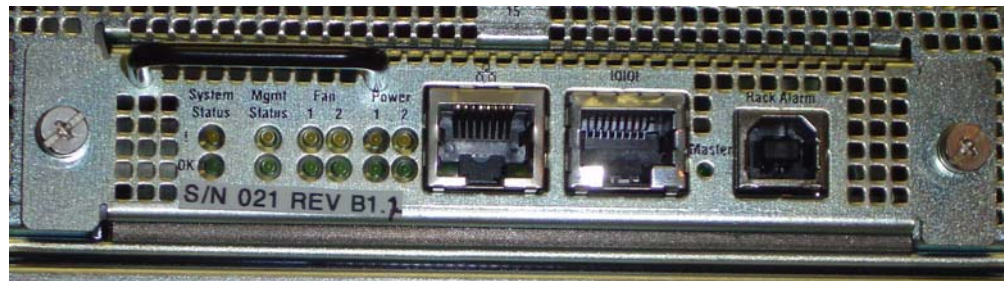


Figure 3-19: Example of the Management Interface Module

7. If the Master Management Interface module was removed, the standby module becomes active. The “Master” led becomes green.
8. Install a blanking panel in the empty bay, or refer to [“Installing a Management Interface Module” on page 50](#) to replace the Management Interface module.

Installing a Management Interface Module

1. Remove the new Management Interface module from the package.
2. Ground yourself appropriately.
3. Refer to [“Removing a Management Interface Module” on page 49](#) if a Management Interface module is still in place.
4. Remove the blanking panel if a Management Interface module was not previously in place.
5. Align the Management Interface module and push the module completely into the bay.
6. Use the LEDs to verify the status of the management interface module and the corresponding core card. Refer to [“Management Interface Module LEDs” on page 71](#).
7. Connect the Ethernet or serial cables to the ports.
8. Tighten the outside screws with a #1 phillips screwdriver.

Chassis ID Modules

About Chassis ID Modules

Refer to [“Chassis ID Module” on page 19](#) for additional information.

Failed Chassis ID Module

If you believe a chassis ID module has failed, contact technical support.

Refer to [“Chassis ID LEDs” on page 74](#) and [“Monitor the Cards” on page 79](#) for monitoring information.

- A failure of the Chassis ID module will cause the yellow error LEDs to be lit on the Chassis ID module. The System Status LED will turn yellow as well.



CAUTION: Never remove a Chassis ID unless Technical Support has specifically instructed you to do so.

Locating the Chassis ID Module

The Chassis ID module is located on the back of the chassis. Refer to [Figure 1-2](#) for a diagram of the chassis.

Removing a Chassis ID Module

1. If you must remove a Chassis ID module, verify that you have a means of covering the slot before removing the module. Do not remove the module unless you have a replacement or a blanking panel for the slot, as overheating may occur.
2. Ground yourself appropriately.

3. Use a #1 phillips screwdriver to loosen and remove the screws from the left and right side of the Chassis ID module.



Figure 3-20: Loosen the Captive Screws

4. Pull the Chassis ID module from the bay.

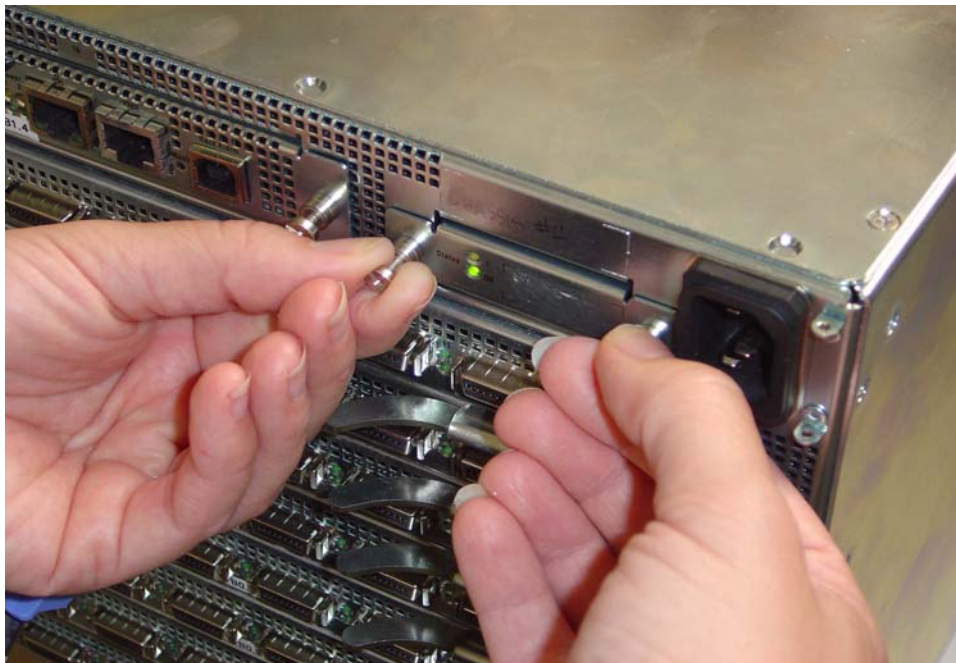


Figure 3-21: Remove the Chassis ID Module

5. Do not allow the bay to remain empty, as overheating may occur. The Topspin 270 should never be run without the replacement module, so you should immediately install the new Chassis ID module.

Refer to [“Installing a Replacement Chassis ID Module”](#) on page 52.

Installing a Replacement Chassis ID Module

1. Remove the new Chassis ID module from the package.
2. Ground yourself appropriately.
3. Remove the old Chassis ID module, if you have not already done so. Refer to [“Removing a Chassis ID Module” on page 50](#) if a Chassis ID module is still in place.
4. Align the chassis ID module with the slot and push the module completely into the bay.



5. Use the LEDs to verify the status of the module. Refer to [“Chassis ID LEDs” on page 74](#).
The new Chassis ID has been previously serialized with the information that is unique to your chassis.
6. Reboot the chassis by using the GUI, or by using the **reload** command.

Example

```
Topspin-270# reload
System configuration has been modified. Save?
[yes (default)/no/*.cfg] yes
Proceed with reload? [confirm]
Topspin-270#
Connection to host lost.
#
```

Administrative Tasks

This chapter describes administrative tasks that may be performed on the Topspin 270 system.

- [“Upgrade all Cards in a Chassis” on page 53](#)
- [“Upgrading an Individual Controller Card” on page 56](#)
- [“Upgrading Individual Node Cards” on page 59](#)

Upgrade all Cards in a Chassis

These procedures assumes you are upgrading all fabric controllers and node cards in the chassis.

Upgrading a Topspin 270 with the CLI

For the commands needed to upgrade a Topspin 270 chassis using the CLI, refer to the *CLI Reference Guide*.

Upgrading a Topspin 270 with Element Manager

The following procedure describes the upgrade procedure using the Element Manager GUI. This procedure also assumes you are upgrading all fabric controllers in the chassis.

1. Launch Element Manager for the server switch.
2. Delete any old .img files to make room for the new image.
 - a. Select **Maintenance > File Management**
 - b. Click on a .img file, if one exists and click the **Delete** button.
 - c. Repeat for all Server Switches you wish to upgrade.
3. Copy the new image to the Server Switch:
 - a. Select **Maintenance > File Management**
 - b. Click the **Import** button.
 - c. **File Type = Image**
 - d. Select **Remote FTP Server** or **Local File** to navigate to the file.

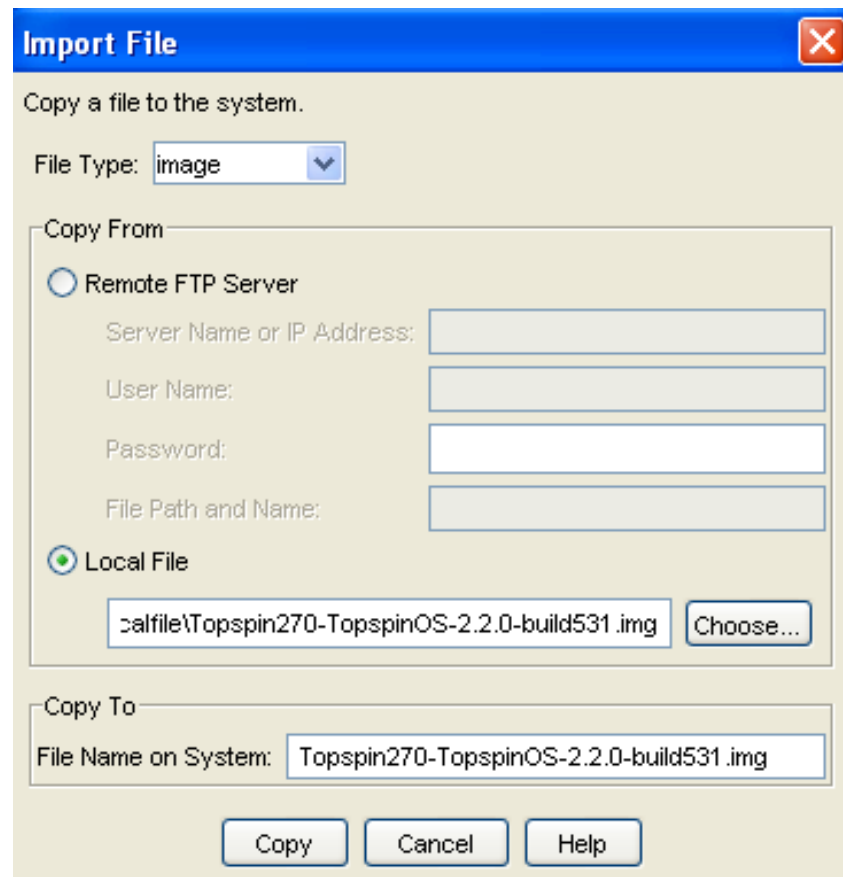


Figure 4-1: Copy the .img File to Server Switch

- e. Click the **Copy** button and wait for the message that indicates the copy was successful.
 - f. Click Ok.
4. Install the new image.

Note: all cards in the chassis must have an **oper-status** of “*up*” for the upgrade to be effective on all components.

- a. Select **Maintenance > File Management**
- b. Click the new .img file and click the **Install** button.
- c. Click **Yes** when prompted.
- d. Repeat for all Server Switches you wish to upgrade.

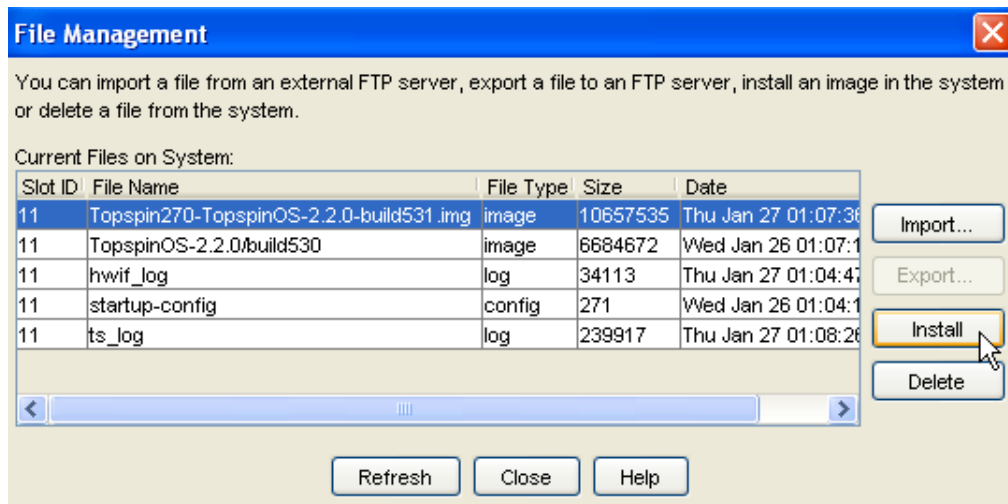


Figure 4-2: Watching the File Copy Progress

- e. Click **Ok** when the **Image Install Completed Successfully** message appears.
5. Configure the image for the next boot:
 - a. Select **Maintenance > Boot Config**
 - b. Select the new image from the **Image Source** drop-down menu and click the **Apply** button.

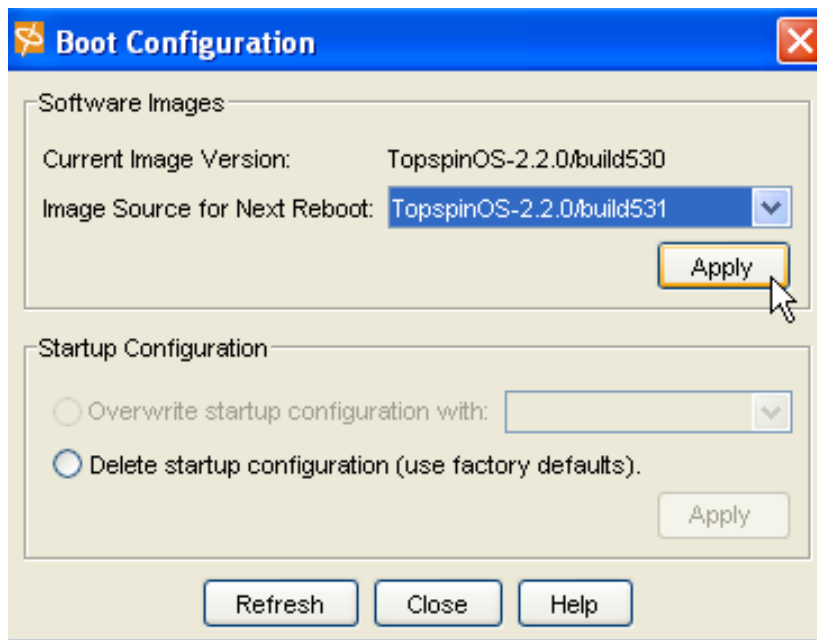


Figure 4-3: Set the Boot Config

- c. Repeat for all Server Switches you wish to upgrade.

6. Select **Maintenance > Reboot** to reboot the controller cards and activate the image. Click **Yes** at the prompt.
7. View the new image on the cards:
 - a. Select **View > Device Front View**.
 - b. Right-click one of the cards and select **Properties**.
 - c. Click the **Inventory** tab and view the version name in the **Current Image Source** field.

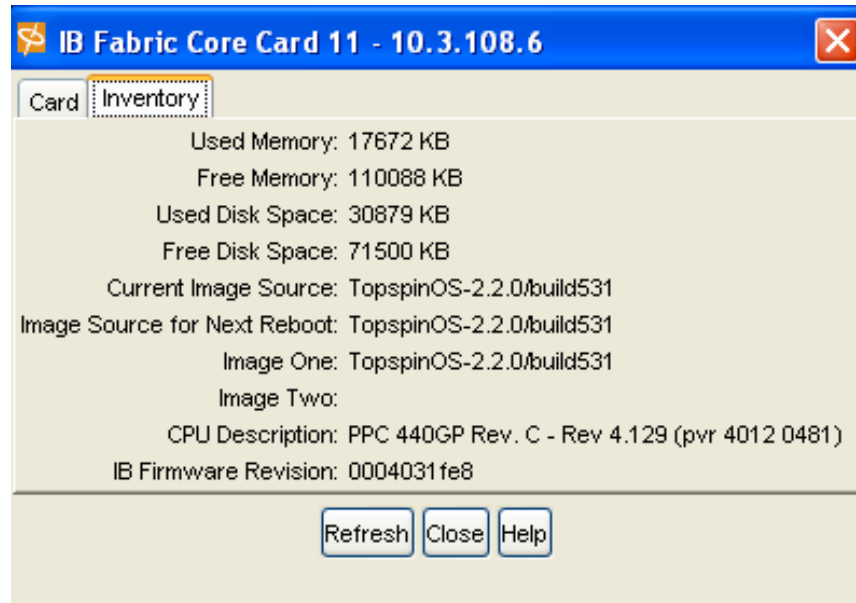


Figure 4-4: Upgraded Current Image

8. Repeat for additional switches in the fabric.

Upgrading a Topspin 270 with the Chassis Manager

For the procedure needed to upgrade a Topspin 270 chassis using the Chassis Manager GUI, refer to the *Chassis Manager User Guide*.

Upgrading an Individual Controller Card

When upgrading a single Controller card (for example, when replacing an old fabric Controller card with a new one), it is recommended that you use the CLI if you need to change the image on the new card.

You can use the Element Manager or Chassis Manager to upgrade/downgrade one Controller card to match the image of another. However, the GUIs do not support the ability to reboot the standby Controller. Therefore, you must physically remove and reinsert the standby Controller card to activate the image.

Upgrading a Controller Card with the CLI

For the commands needed to upgrade a single Controller card using the CLI, refer to the *CLI Reference Guide*.

1. Check the version of your Controller card with the **show card-inventory** command. In the example below, only the Controller card in slot 12 needs to be upgraded.

Example

```
Topspin-270# show card-inventory
```

```
=====
                        Card Resource/Inventory Information
=====

    slot-id : 11
    used-memory : 18092 (kbytes)
    free-memory : 109676 (kbytes)
    used-disk-space : 30891 (kbytes)
    free-disk-space : 71488 (kbytes)
    last-image-source : TopspinOS-2.2.0/build531
    primary-image-source : TopspinOS-2.2.0/build531
        image : TopspinOS-2.2.0/build531
    cpu-descr : PPC 440GP Rev. C - Rev 4.129 (pvr 4012 0481)
    fpga-firmware-rev : ae
    ib-firmware-rev : 0004031fe8

    slot-id : 12
    used-memory : 18092 (kbytes)
    free-memory : 109676 (kbytes)
    used-disk-space : 30891 (kbytes)
    free-disk-space : 71488 (kbytes)
    last-image-source : TopspinOS-2.2.0/build487
    primary-image-source : TopspinOS-2.2.0/build487
        image : TopspinOS-2.2.0/build487
    cpu-descr : PPC 440GP Rev. C - Rev 4.129 (pvr 4012 0481)
    fpga-firmware-rev : ae
    ib-firmware-rev : 0004031fe8
```

2. Show the standby Controller card.

Example

```
Topspin-270# show card-inventory
```

```
=====
                        Card Resource/Inventory Information
=====
        slot-id : 11
        used-memory : 18092 (kbytes)
        free-memory : 109676 (kbytes)
        used-disk-space : 30891 (kbytes)
        free-disk-space : 71488 (kbytes)
        last-image-source : TopspinOS-2.2.0/build531
        primary-image-source : TopspinOS-2.2.0/build531
        image : TopspinOS-2.2.0/build531
        cpu-descr : PPC 440GP Rev. C - Rev 4.129 (pvr 4012 0481)
        fpga-firmware-rev : ae
        ib-firmware-rev : 0004031fe8

        slot-id : 12
        used-memory : 16017 (kbytes)
        free-memory : 107432 (kbytes)
        used-disk-space : 30891 (kbytes)
        free-disk-space : 71488 (kbytes)
        last-image-source : TopspinOS-2.2.0/build487
        primary-image-source : TopspinOS-2.2.0/build487
        image : TopspinOS-2.2.0/build487
        cpu-descr : PPC 440GP Rev. C - Rev 4.129 (pvr 4012 0481)
        fpga-firmware-rev : ae
        ib-firmware-rev : 0004031fe8
```

3. Check to see if you already have a .img file that can be installed. (Delete the .img file, if it not the one you need to install. Use the **delete [slot-number:]image:file-name** command.)

Example

```
Topspin-270# dir image
```

```
=====
                        Existing Boot-Images on System
=====
slot date-created          size      file-name
-----
11  Thu Jan 27 01:07:36 2005  10657535  Topspin270-TopspinOS-2.2.0-build531.img
11  Thu Jan 27 01:27:02 2005   6684672  TopspinOS-2.2.0/build531

Topspin-270#
```

4. Copy the image to the switch, if you do not have the correct .img file.

copy ftp://<remote-login>:<remote-passwd>@<remote-system>/<filename>.img [<slot-number of the controller>:]image:<filename>.img

Example

```
Topspin-270# copy
ftp://bob:mypassword@10.0.0.5/Topspin-360-TopspinOS-2.2.0-build531.img
image:Topspin-360-2.1.0-build497.img
TopspinOS-2.1.0-build497.img
```

5. Activate the image. After downloading the image file to the chassis controller, it must be installed to become active. The **install** command installs the specified image file into the system.
 - a. In the privileged-execute mode, enter **install image:image-file-name.img**

Example

```
Topspin-270# install image:Topspin-270-TopspinOS-2.2.0-build531.img
*****operation completed successfully
```

6. Specify the new boot image to be used.
 - a. Find the name of your new system image by entering the **dir image** command. Copy the name of the new image.
 - b. Enter **boot-config primary-image-source**, then paste the copied image file name.

Example

```
Topspin-270# configure
Topspin-270 (config)# boot-config primary-image-source TopspinOS-2.2.0/build531
Topspin-270 (config)# exit
```

7. Reset the individual Controller card *without* rebooting the whole chassis.

Example

```
Topspin-270 (config)# card 12
Topspin-270 (config-card-12)# action reset
```

Upgrading Individual Node Cards

Upgrading a Node Card with the CLI

For the commands needed to upgrade a node card using the CLI, refer to the *CLI Reference Guide*.

Upgrading a Node Card with Element Manager

The following procedure describes the upgrade procedure for individual node cards using the Element Manager GUI. This procedure assumes you are upgrading only one or more node cards, and not the Controller cards.

1. Launch Element Manager for the server switch.
2. Delete any old .img files to make room for the new image.
 - a. Select **Maintenance > File Management**
 - b. Click on a .img file, if one exists and click the **Delete** button.
 - c. Repeat for all Server Switches you wish to upgrade.
3. Copy the new image to the Server Switch:
 - a. Select **Maintenance > File Management**
 - b. Click the **Import** button.
 - c. **File Type = Image**
 - d. Select **Remote FTP Server** or **Local File** to navigate to the file.

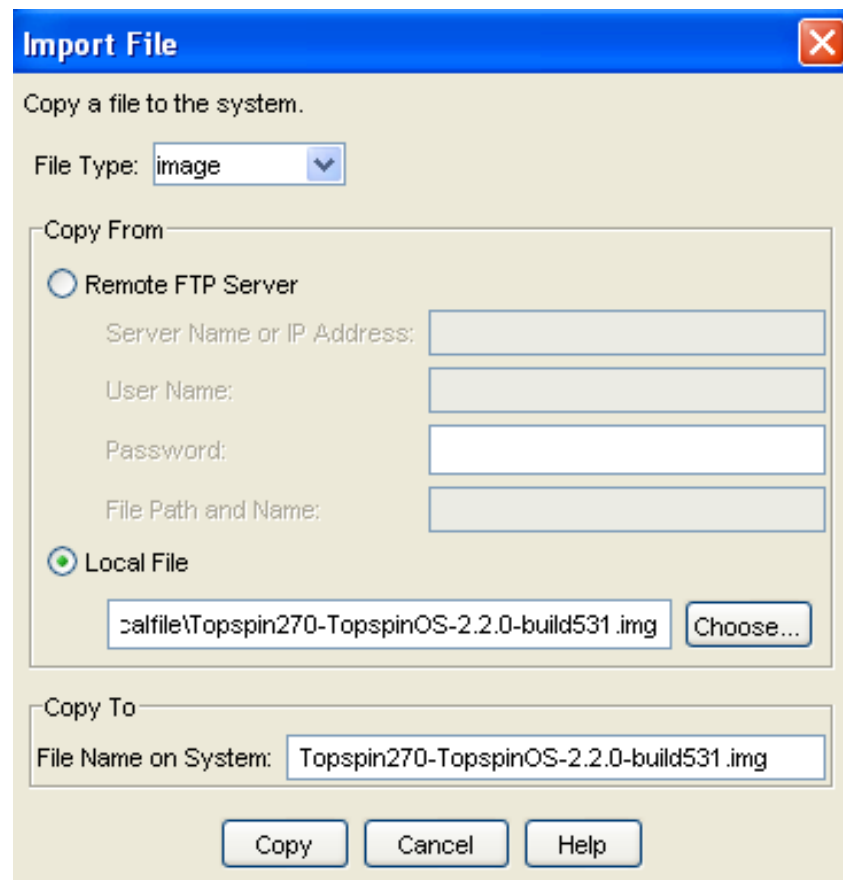


Figure 4-5: Copy the .img File to Server Switch

- e. Click the **Copy** button and wait for the message that indicates the copy was successful.
 - f. Click Ok.
4. Install the new image.

Note: all node cards in the must have an **oper-status** of “*up*” for the upgrade to be effective.

- a. Select **Maintenance > File Management**
- b. Click the new .img file and click the **Install** button.
- c. Click **Yes** when prompted.

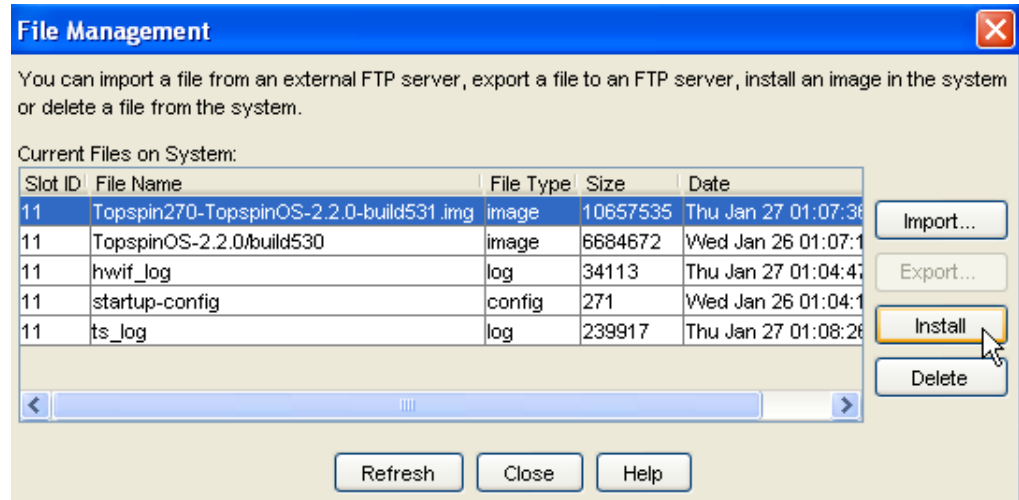


Figure 4-6: Watching the File Copy Progress

- d. Click **Ok** when the **Image Install Completed Successfully** message appears.
5. Configure the image for the next boot:
 - a. Select **Maintenance > Boot Config**
 - b. Select the new image from the **Image Source** drop-down menu and click the **Apply** button.

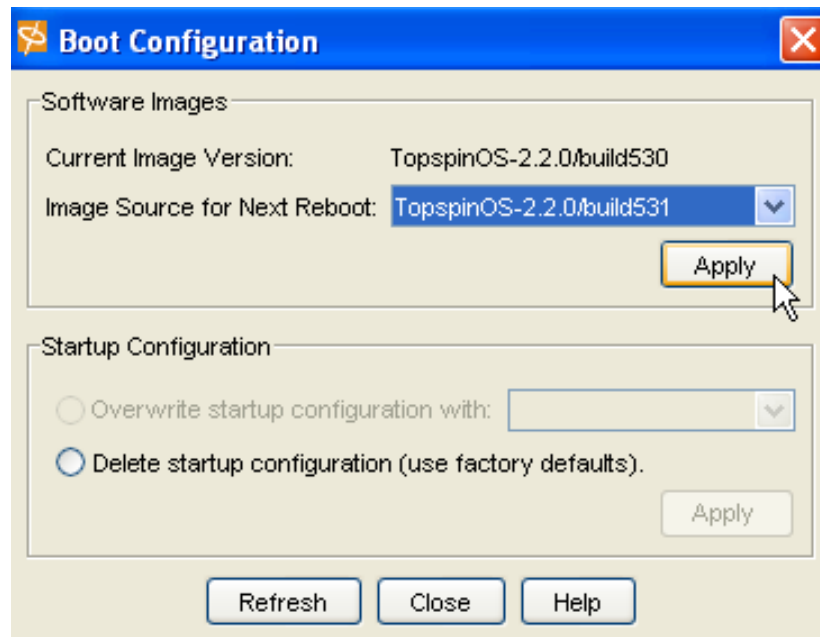


Figure 4-7: Set the Boot Config

6. Activate the image on the node card(s) by enabling and disabling each node card. Do not reboot the chassis as this will not result in the image being applied to the node card(s).
 - a. Right-click a node card and select **Properties**.
 - b. Click the **down** radio button and select the **Apply** button.

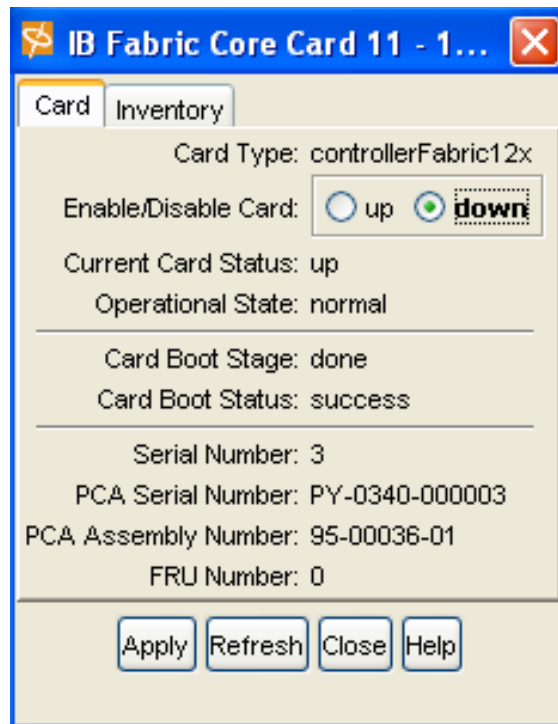


Figure 4-8: Disable and Enable the Node Card(s)

- c. Click the **up** radio button and select the **Apply** button.
7. View the new image on the node card(s) when the card comes back online:
 - a. Select **View > Device Front View**.
 - b. Right-click one of the cards and select **Properties**.
 - c. Click the **Inventory** tab and view the version name in the **Current Image Source** field.

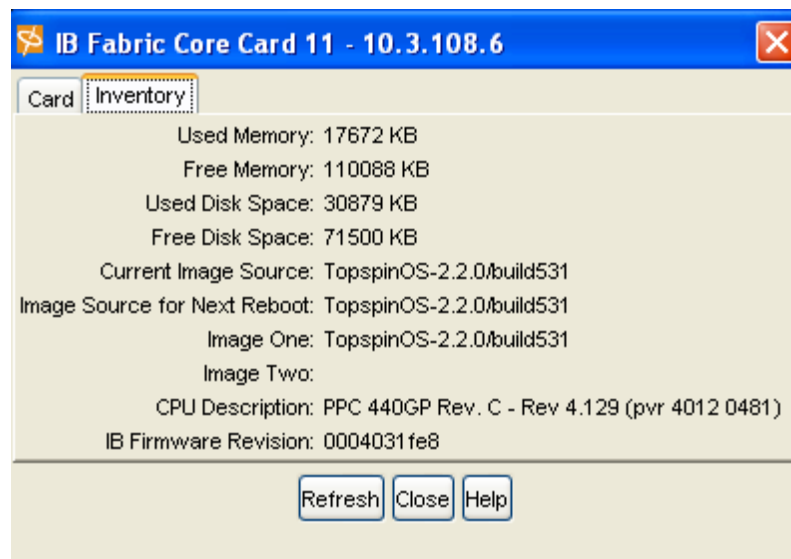


Figure 4-9: Upgraded Current Image

Upgrading Node Card(s) with the Chassis Manager

For the procedure needed to upgrade node cards using the Chassis Manager GUI, refer to the *Chassis Manager User Guide*.

Monitoring the Topspin 270 System

This chapter describes how to install and manage the Topspin 270 system hardware.

- [“Interpreting the Front Panel LEDs” on page 65](#)
- [“Interpreting the Back Panel LEDs” on page 71](#)
- [“Monitoring the System with Chassis Manager” on page 76](#)
- [“Monitoring the System with Element Manager” on page 84](#)
- [“Monitor the System With the CLI” on page 86](#)

Interpreting the Front Panel LEDs

The front of the Topspin 270 chassis has the following types of LED indicators:

- [“System-Wide Status LED” on page 66](#)
- [“Power Supply LEDs” on page 67](#)
- [“Fan LEDs” on page 69](#)
- [“Fabric Controller LEDs” on page 70](#)

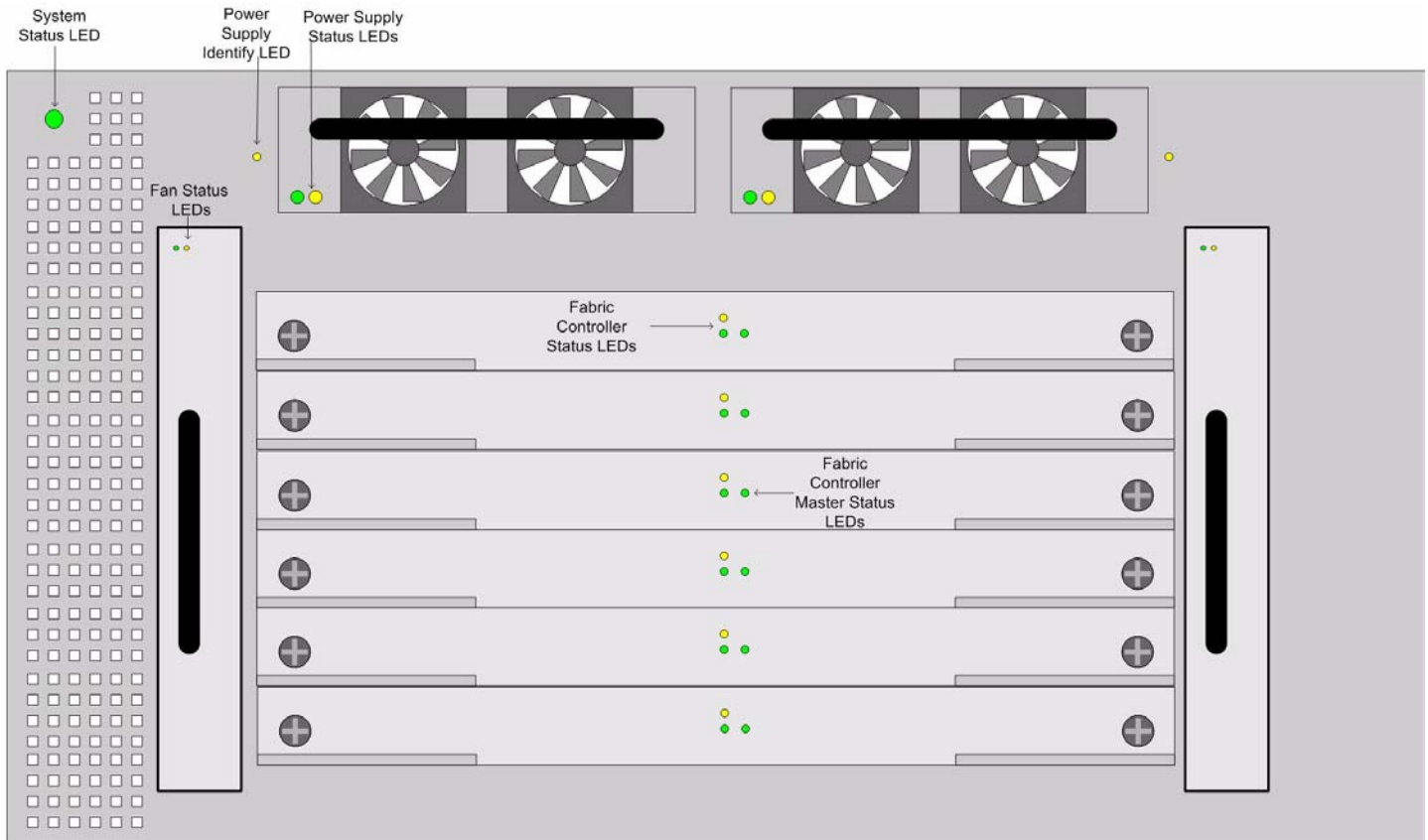


Figure 5-1: Front Panel LEDs

System-Wide Status LED

Locating the System-Wide Status LED

The system-wide status LED is located on the front of the chassis, and is visible whether the bezel cover is on or off. This LED indicates the overall health of all modules in the system.

If you are facing the front of the chassis, the system-wide status LED is found on the top left corner of the switch.

In addition, a mirror of the system-wide LEDs are positioned on the back of the chassis. Refer to [“Management Interface Module LEDs”](#) on page 71.

Interpreting the System Status LED

Table 5-1: Interpreting the System-Wide LED (see [Figure 5-1](#))

Color	State	Indication
	off	No system power or LED failure.
Green	solid on	System running with no detected errors.
Yellow	solid on	Failure within the system. Operator attention required.

Table 5-1: Interpreting the System-Wide LED (see [Figure 5-1](#))

Color	State	Indication
Yellow	blinking	<p>System identify.</p> <p>This state is initiated by the user.</p> <p>This LED can be initiated manually by using the diag LED test. Refer to the <i>Command Line Reference Guide</i> for more information.</p> <p>Example:</p> <p>To run identity test on Power Supply 1: config mode -> diag power-supply 1 -> test led -> -> start - start flashing -> stop - stop flashing</p>

Power Supply LEDs

Locating the Power Supply LEDs

The Power Supply LEDs are located in the outside of each Power Supply module, if you are facing the front of the chassis with the bezel cover removed.

**Figure 5-2:** Power Supply LEDs

In addition, a Power Supply Identify LED is located on the outside of the chassis, next to the corresponding power supply. This LED allows the user to initiate a command that causes the Identify LED to blink, which assists in locating a particular Field Replaceable Unit.



Figure 5-3: Power Supply Identify LED

Replicas of the Power Supply LEDs are positioned on the back of the chassis. Refer to “[Management Interface Module LEDs](#)” on page 71.

Interpreting the Power Supply LEDs

Table 5-2: Interpreting the Power Supply LEDs (see [Figure 5-2](#))

Color	State	Indication
Green and Yellow	off	No power to the power supply, or LED failure.
Green	solid on	Power Supply running with no detected errors.
Green	off	No power to the power supply, LED failure, or DC output failure.
Yellow	off	Power Supply running with no detected errors.
Yellow	solid on	Operator intervention required. Failure detected within the Power Supply.

Table 5-3: Interpreting the Power Supply Identify LED

Color	State	Indication
Yellow	blinking	<p>Identify. Assists in identifying a particular Field Replaceable Unit on the chassis. (see Figure 5-3)</p> <p>This state is initiated by the user.</p> <p>This LED status is initiated manually by using the diag LED test. Refer to the <i>Command Line Reference Guide</i> for more information.</p> <p>Example:</p> <p>To run identity test on fan 1:</p> <p>config mode -> power-supply 1 -> test led -></p> <p>-> start - start flashing</p> <p>-> stop - stop flashing</p>

Fan LEDs

Location

The Fan LEDs are located at the top of each Fan tray module. Refer to “[Front Panel LEDs](#)” on page 66. In addition, replicas of the Fan Tray LEDs are positioned on the back of the chassis. Refer to “[Management Interface Module LEDs](#)” on page 71.

Interpreting the Fan LEDs

Table 5-4: Interpreting the Fan LEDs (see [Figure 5-1](#))

Color	State	Indication
Green and Yellow	off	No power to the fan tray, or LED failure.
Green	solid on	Fan tray running with no detected errors.
Green	off	No power to the fan tray, LED failure, or yellow LED is ON.
Yellow	off	Fan tray running with no errors detected.
Yellow	solid on	Operator intervention required. Failure detected within the fan tray.
Yellow	blinking	<p>Identify. Assists in identifying a particular Field Replaceable Unit on the chassis.</p> <p>This state is initiated by the user.</p> <p>This LED can be initiated manually by using the diag LED test. Refer to the <i>Command Line Reference Guide</i> for more information.</p> <p>Example:</p> <p>To run the identity test on fan 1:</p> <p>config mode -> diag fan 1 -> test led -></p> <p>-> start - start flashing</p> <p>-> stop - stop flashing</p>

Fabric Controller LEDs

Each Fabric Module has two sets of LED indicators.

- The two LEDs (green or yellow) are the module status indicators ([Table 5-5](#)).
- The single LED (green only) indicates whether or not the module is the active system master ([Table 5-6](#)).

Location

Refer to [Figure 5-1](#) to view the front panel of the chassis.

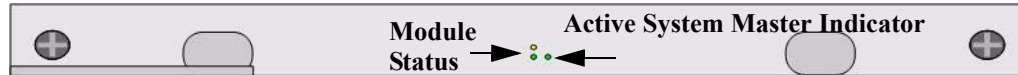


Figure 5-4: Locate Fabric Controller LEDs

Interpreting the Fabric Controller LEDs

Table 5-5: Interpreting the Fabric Controller's Module Status LEDs (see [Figure 5-1](#) and [Figure 5-4](#))

Color	State	Indication
Green over Yellow	off	No system power, or LED failure.
Green	solid on	System running with no errors detected.
Green	off	No power to the fabric controller, LED failure, or yellow LED is On.
Yellow	off	No failure on the fabric controller.
Yellow	solid on	Module error detected. Operator intervention required.
Yellow	blinking	Identify. Assists in identifying a particular Field Replaceable Unit on the chassis. This state is initiated by the user. This LED can be initiated manually by using the diag LED test. Refer to the <i>Command Line Reference Guide</i> for more information.

Table 5-6: Interpreting the Fabric Controller's Master Status LED (see [Figure 5-4](#))

Color	State	Indication
Active Master Status Indicator		
Green	on	This module is currently the system master. Note that only fabric modules in one of the two core slots can become master.
Green	off	This module is not the active system master. Note that only fabric modules in one of the two core slots can become master.

Interpreting the Back Panel LEDs

The back of the Topspin 270 chassis has the following types of LED indicators:

- “Management Interface Module LEDs” on page 71
- “Chassis ID LEDs” on page 74
- “LIM Status LEDs” on page 75
- “InfiniBand Port LEDs” on page 75

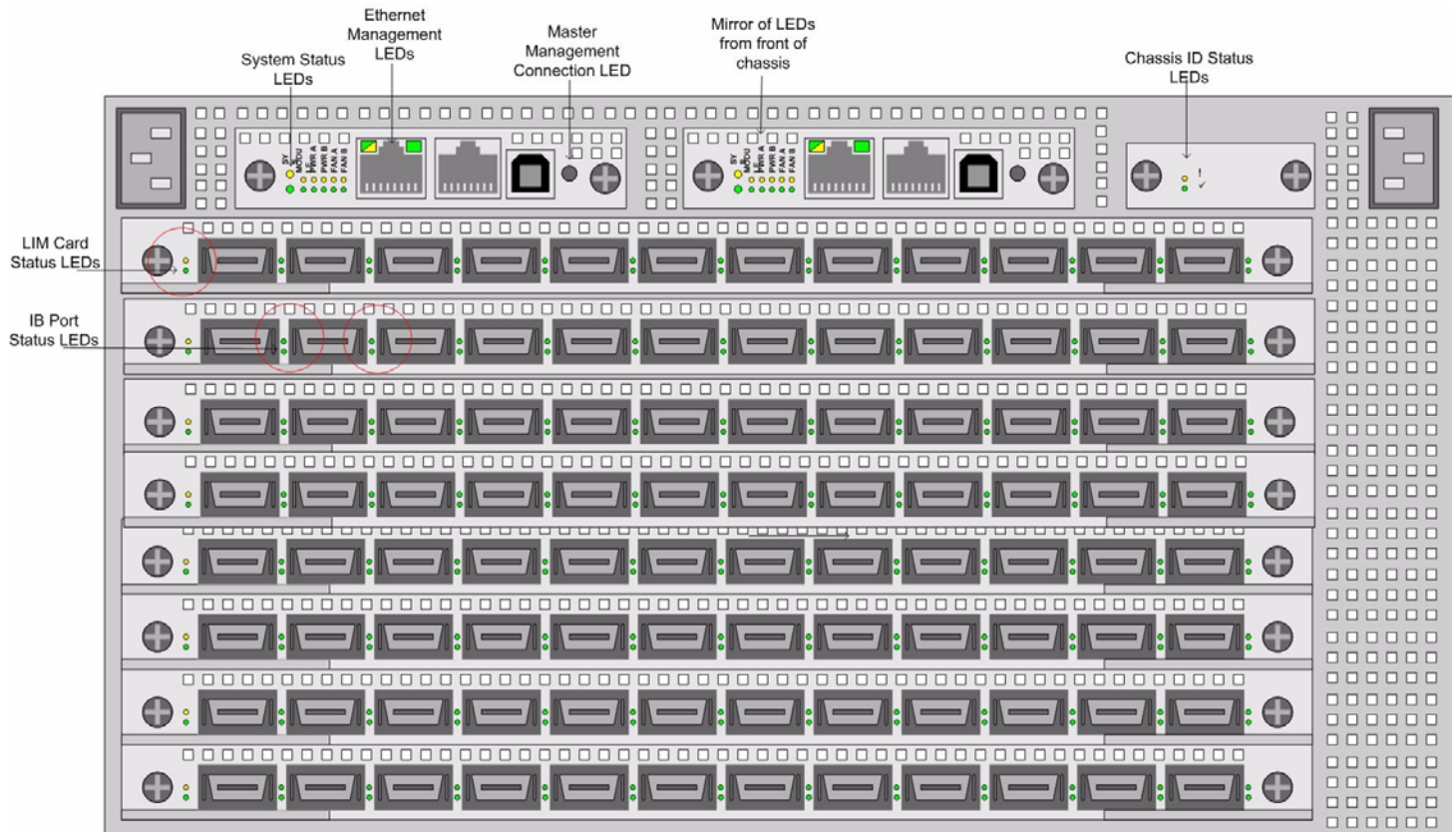


Figure 5-5: Back Panel LEDs

Management Interface Module LEDs

The Management Interface modules have six LED yellow over green indicator pairs, which show critical system module statuses.

The six pairs of LED indicators are a mirror of the LEDs that appear on the front of the chassis:

- System-wide status (Table 5-7)
- Management Module status (Table 5-8)
- Power Supply 1 and 2 status (Table 5-10)
- Fan Tray 1 and 2 status (Table 5-9)

In addition, the Ethernet Management port RJ-45 connector on the Management Interface module has built-in status LEDs for link and traffic status.

Location

The Management Interface modules are located at the top of back the chassis. Refer to [Figure 5-5](#) to view the chassis diagram.

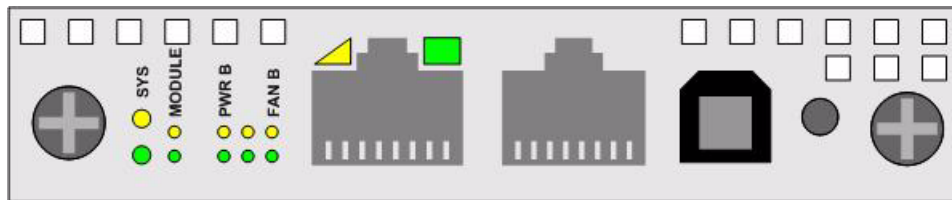


Figure 5-6: Management Interface Module LEDs

Interpreting the Management Interface LEDs

System Status LEDs

Table 5-7: Interpreting the Management Interface Module System Status LEDs (see [Figure 5-6](#))

Color	State	Indication
Green and Yellow	off	No module power, or LED failure.
Green	solid on	System running with no errors detected.
Green	off	No power to the Management Interface module, LED failure, or yellow LED is ON.
Yellow	solid on	At least one module failure in the system. Operator attention required. The “!” label indicates a failure.
Yellow	blinking	Identify. Assists in identifying a particular Field Replaceable Unit on the chassis. This state is initiated by the user. This LED can be initiated manually by using the diag LED test. Refer to the <i>Command Line Reference Guide</i> for more information. Example: Run the identity test on Power Supply 1: config mode -> diag card 15 -> test led -> -> start - start flashing -> stop - stop flashing

Management Interface Status LEDs

Table 5-8: Interpreting the Management Interface Module Status LEDs (see [Figure 5-6](#))

Color	State	Indication
Green over Yellow	off	No module power, or LED failure.
Green	solid on	The Management Interface module is running with no errors detected.

Table 5-8: Interpreting the Management Interface Module Status LEDs (see [Figure 5-6](#))

Color	State	Indication
Green	off	No power to the Management Interface module, LED failure, or yellow LED is ON.
Yellow	solid on	Failure of the Management Interface module. Operator attention required. The “!” label indicates a failure.
Yellow	blinking	Identify a Management Interface module. Assists in identifying a particular Field Replaceable Unit on the chassis. This state is initiated by the user. This LED can be initiated manually by using the diag LED test. Refer to the <i>Command Line Reference Guide</i> for more information. Example: For example, to run the identity test on Power Supply 1: config mode -> diag card 15 -> test led -> -> start - start flashing -> stop - stop flashing

Fan Tray Module Status LEDs**Table 5-9:** Interpreting the Fan Tray Status LEDs (see [Figure 5-6](#))

Color	State	Indication
Green over Yellow	off	No module power, or LED failure.
Green	solid on	Fan tray is running with no errors detected.
Green	off	No power to the fan tray, LED failure, or yellow LED is On.
Yellow	solid on	Failure of the fan tray. Operator attention required. The “!” label indicates a failure.
Yellow	blinking	Identify a fan tray module. Assists in identifying a particular Field Replaceable Unit on the chassis. This state is initiated by the user. This LED can be initiated manually by using the diag LED test. Refer to the <i>Command Line Reference Guide</i> for more information. Example: For example, to run the identity test on Power Supply 1: config mode -> diag fan 1 -> test led -> -> start - start flashing -> stop - stop flashing

Power Supply Module Status LEDs

Table 5-10: Interpreting the Power Supply Status LEDs (see [Figure 5-6](#))

Color	State	Indication
Green over Yellow	off	No fan module installed, or LED failure.
Green	solid on	Power supply is running with no errors detected.
Green	off	No power to the Power supply, LED failure, or yellow LED is On.
Yellow	solid on	Failure of the Power Supply. Operator attention required. The “!” label indicates a failure.

Master Management Connection Status LED

The Master Management Connection Status LED is a single LED that indicates whether that particular Management Interface module is connected to the system's active master controller.

Refer to [Figure 5-5](#) to view the location of this LED.

Table 5-11: Interpreting the Master Management Connection LEDs (see [Figure 5-6](#))

Color	State	Indication
Green	off	Management module is not connected to the active master controller, or is connected to the system's standby master controller.
Green	solid on	Management module is connected to the system's active master controller.

Ethernet Management Port RJ-45 connector LEDs

Refer to [Figure 5-5](#) to view the location of this LED.

Table 5-12: Interpreting the Ethernet Management Port LEDs (see [Figure 5-6](#))

Location	State	Indication
Left port LED	off	Port is not connected or logical link is down.
Left port LED	on	Port is connected and logical link is up.
Right port LED	off	No traffic is moving on the Ethernet Management port link. Logical link may or may not be Up.
Right port LED	on	Traffic is moving on the Ethernet Management port link.

Chassis ID LEDs**Figure 5-7:** Chassis ID LEDs

The Chassis ID Status LED indicates the status of this module.

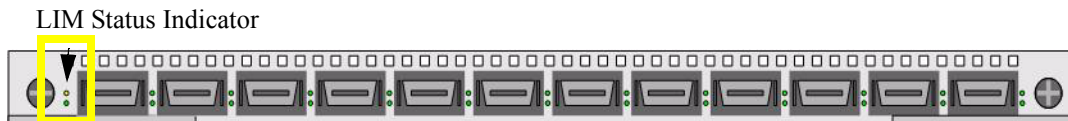
Table 5-13: Interpreting the Chassis ID Status LEDs (see [Figure 5-7](#))

Color	State	Indication
Green/Yellow	off	No module power, or LED failure.
Green	solid on	Chassis ID module is running with no errors detected.
Green	off	No power to the Chassis ID module, LED failure, or yellow LED is On.
Yellow	solid on	Failure of the Chassis ID module. Operator attention required. The “!” label indicates a failure.
Yellow	blinking	Identify a Chassis ID module. Assists in identifying a particular Field Replaceable Unit on the chassis. This state is initiated by the user. This LED can be initiated manually by using the diag LED test. Refer to the <i>Command Line Reference Guide</i> for more information.

LIM Status LEDs

Location

The LIM Status LED is located at the far left of each LIM card (if you are facing the back of the chassis). Refer to [Figure 5-5](#) for a complete diagram of the back panel of the chassis.

**Figure 5-8:** LIM Status Indicator LEDs

Interpreting the LIM Status LEDs

Table 5-14: Interpreting the LIM Status LED

Color	State	Indication
Green and Yellow	off	No module power, or LED failure.
Green	solid on	Line Interface module is running with no errors detected.
Green	off	No power to the Line Interface module, LED failure, or yellow LED is On.
Yellow	solid on	Failure of the Line Interface module. Operator attention required. The “!” label indicates a failure.

InfiniBand Port LEDs

The InfiniBand LED represents the logical link and the logical link activity.

Location

The InfiniBand port LEDs are located to the right of each InfiniBand port (if you are facing the LIM card) in the back of the chassis.

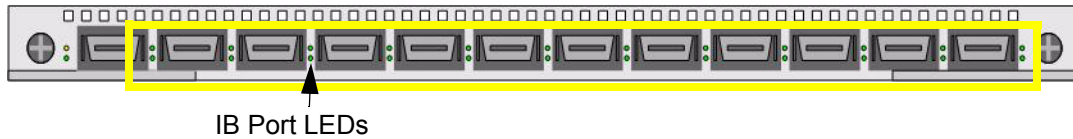


Figure 5-9: InfiniBand Port LEDs

Interpreting the InfiniBand Port LEDs

Table 5-15: Interpreting the InfiniBand Port Status LED

Top (Logical) LED	Bottom (Traffic) LED	Indication
off	off	No link signal detected.
off	solid on	Physical link OK. No logical link established.
solid on	solid on	Physical link OK. Logical link established.
blinking	solid on	Physical and logical link OK. Traffic active.

Monitoring the System with Chassis Manager

For information regarding launching the Chassis Manager GUI, refer to the *Topspin 270 Quick Start Guide* or the *Chassis Manager User Guide*.

Monitor the Device

1. Launch the Chassis Manager by entering the IP address of the InfiniBand switch into your web browser.
2. Press the Enter key.

3. The **Device Rear View** and the **Device Front View** appear.

The screenshot displays the Chassis Manager 270 interface. At the top, a dark blue header contains the TOPSPIN logo on the left. To its right, system information is listed: IP Address: 10.3.108.4, System Name: Topspin-270, and Support Contact: support@topspin.com. Further right, hardware status is shown: Cards: 6 | 11 | 13 | 15 | 17, Power Supplies: 2, and Fans: 1 | 2.

On the left side, a navigation tree is visible under the IP address 10.3.108.4. The tree includes: Chassis, Cards, Ports, Power Supplies, Fans, Sensors, Backplane, Management Ports, Maintenance, InfiniBand, and Help.

The main content area is titled "Device View" and shows the path "10.3.108.4 > Device View". A "Refresh" button is located below the title. The "Device Rear View" section shows a graphical representation of the device's rear panel. At the top left is a power button. To its right are two indicator lights, one labeled "Enet" and one labeled "Serial". Below these are two large rectangular panels. The bottom section of the rear view features a row of 12 numbered ports (1 through 12), each with a status indicator. To the right of the ports is a vertical perforated area representing a fan or ventilation grille.

Figure 5-10: Chassis Manager 270 Device Rear View

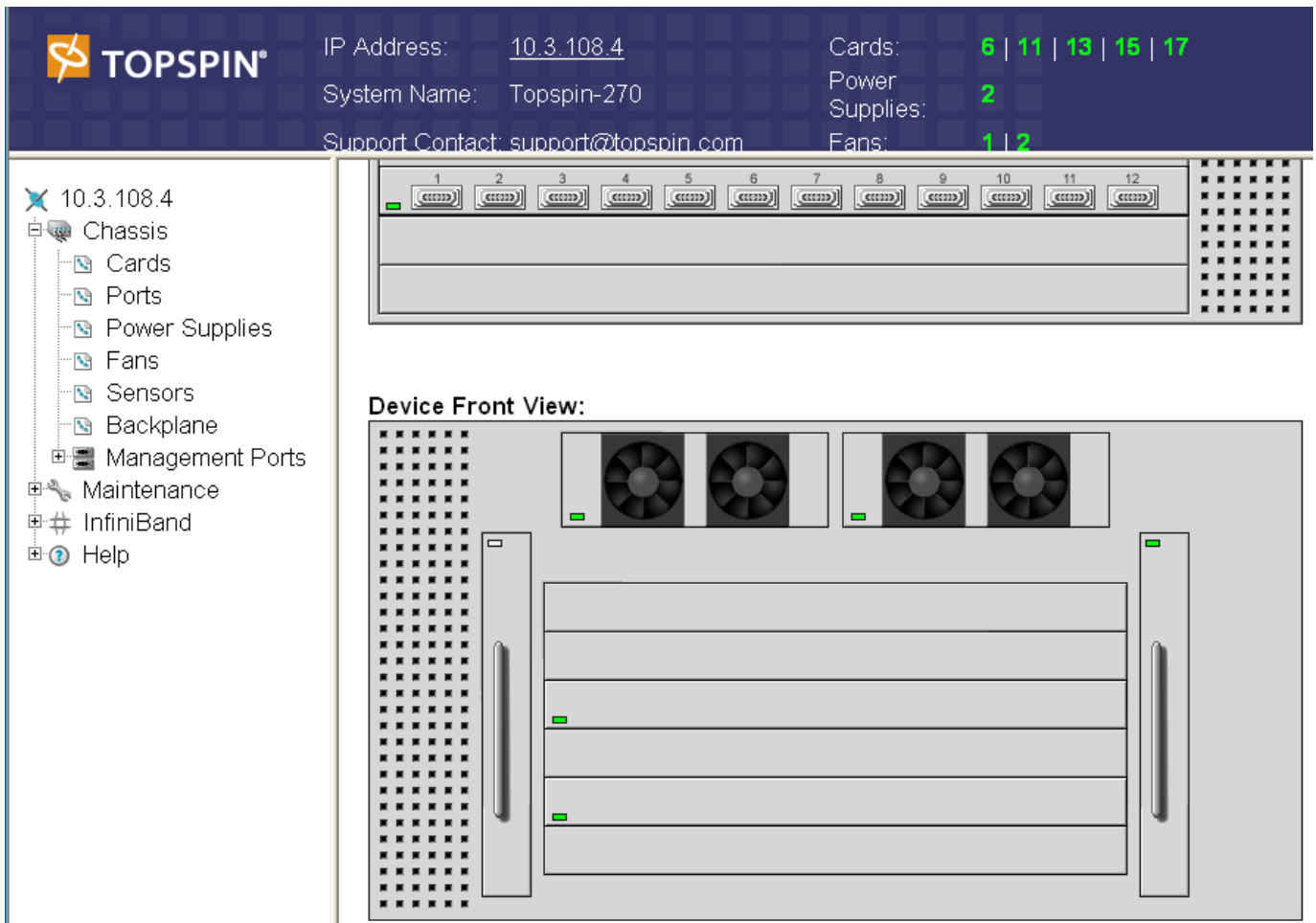


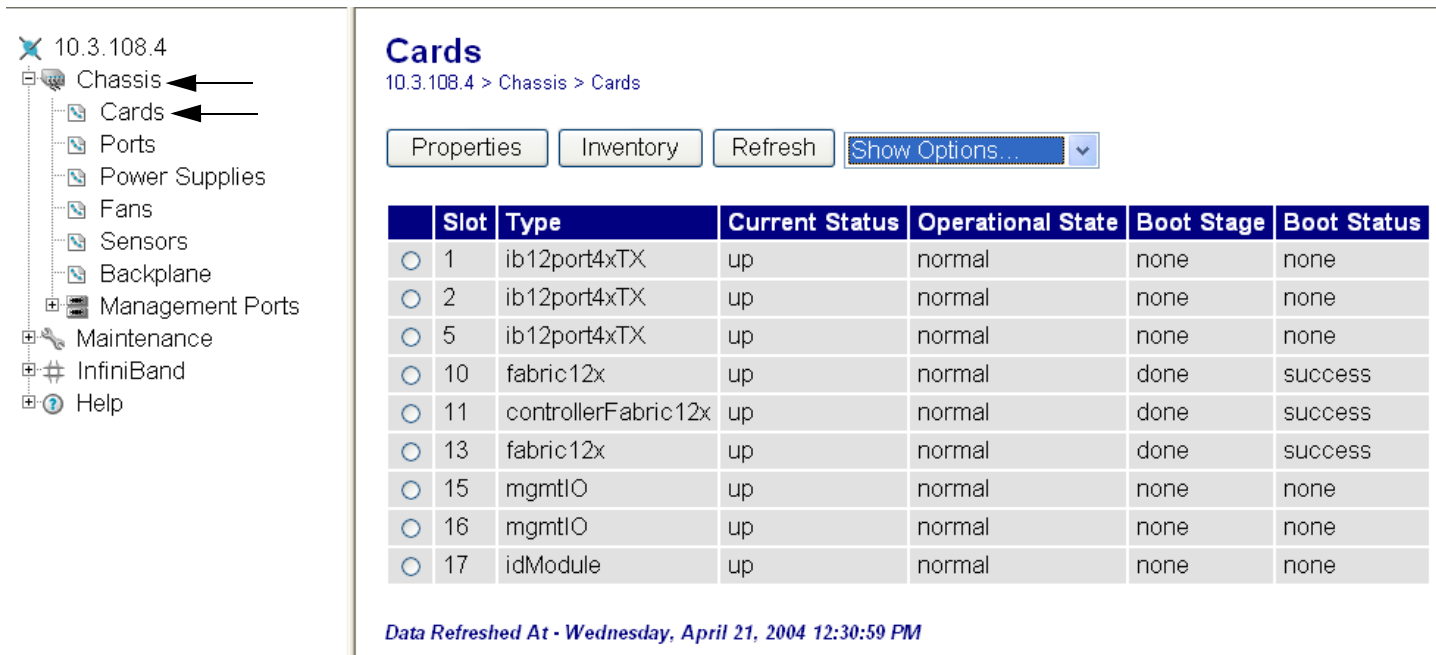
Figure 5-11: Chassis Manager 270 Device Front View

4. View the information at the top of the window to quickly check the status color and the number of modules installed.
 - The numbers associated with the **Card** field indicate the slot numbers where modules are installed.
 - The numbers associated with the **Power Supplies** and **Fans** fields indicate the ID for the module.
 - If only one number appears next to any of the modules, then only one item is installed. The actual integer refers to the slot in which the power supply module is installed. A field that read Power Supplies: 1 | 2 would indicate that a power supply was installed in both possible slots.
 - The color of the integer indicates the status of the power supply. A green number indicates that the power supply is Up. A red number indicates that the power supply has failed.
5. Use the visual representation of the LEDs to monitor the status of the cards, ports, power supplies, and fans.
 - A green LED indicates that a hardware component is installed in the slot, and that the component is functioning without errors.
 - A white LED indicates that no component is installed in the slot.
 - A grey LED indicates one of the following states:
 - A component is installed, but is unmanaged or unreachable.

- In the case of the fabric controller cards, the card that is currently on standby (not the master) will be grey. The master fabric controller will be green.
- A red LED indicates that an error has been detected.

Monitor the Cards

1. Launch the Chassis Manager by entering the IP address of the InfiniBand switch into your web browser.
2. Press the Enter key.
3. The **Device Rear View** and the **Device Front View** appear.
4. Click open the **Chassis** file in the left-navigation tree.
The individual components appear beneath the Chassis menu.
5. Click **Cards** in the left-navigation tree.
The Cards view appears.



Cards
10.3.108.4 > Chassis > Cards

Properties Inventory Refresh Show Options...

	Slot	Type	Current Status	Operational State	Boot Stage	Boot Status
<input type="radio"/>	1	ib12port4xTX	up	normal	none	none
<input type="radio"/>	2	ib12port4xTX	up	normal	none	none
<input type="radio"/>	5	ib12port4xTX	up	normal	none	none
<input type="radio"/>	10	fabric12x	up	normal	done	success
<input type="radio"/>	11	controllerFabric12x	up	normal	done	success
<input type="radio"/>	13	fabric12x	up	normal	done	success
<input type="radio"/>	15	mgmtIO	up	normal	none	none
<input type="radio"/>	16	mgmtIO	up	normal	none	none
<input type="radio"/>	17	idModule	up	normal	none	none

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Figure 5-12: Chassis Manager Cards Window

6. You can monitor the following types of cards:
 - InfiniBand 12 port Line Interface modules with 4x transmission capacity (**ib12port4xTX**)
 - Fabric controller modules installed in a Core slot. The 12x refers to the internal chip speed (**controllerFabric12x**).
 - Fabric controller modules installed in a Node slot. The 12x refers to the internal chip speed (**fabric12x**).
 - Management Interface modules (**mgmt O**)
 - Chassis ID modules (**idModule**)
7. Note the **Current Status** column, which should read **up**. The current status refers to the Up or Down state of the card.
8. Note the **Operational State** column.
The possible states are as follows:
unknown

normal
 bootFailed
 tooHot
 booting
 checkingBootImage
 wrongBootImage
 rebooting
 standby
 recoveryImage

9. Click the radio button next to the card that you want to monitor.
10. Click the **Properties** button to view details about the card, or to reset the card.
 Reset a card to return it to the default state. The cards cannot be shut down because they are architected so that they are always in-service once they are inserted into the chassis.

Monitor the InfiniBand Ports

1. Launch the Chassis Manager by entering the IP address of the InfiniBand switch into your web browser.
2. Log into the chassis.
3. The **Device Rear View** and the **Device Front View** appear.
4. In the left-navigation tree, select the **Chassis -> Cards**.
 The list of cards appear.
5. Click the radio button next to the LIM card whose ports you want to view.
6. In the drop-down menu above the card list, select **Show Ports**. The list of IB ports for the selected LIM card will be displayed.
 The **Ports** view appears.

Ports
 10.3.108.4 > Chassis > Ports

Filter : Card = 5

Properties Refresh Show Options...

	Port	Name	Type	Admin Status	Oper Status	MTU
<input type="radio"/>	5/1	5/1	ib4xFX	up	down	0
<input type="radio"/>	5/2	5/2	ib4xFX	up	down	0
<input type="radio"/>	5/3	5/3	ib4xFX	up	down	0
<input type="radio"/>	5/4	5/4	ib4xFX	up	down	0
<input type="radio"/>	5/5	5/5	ib4xFX	up	down	0
<input type="radio"/>	5/6	5/6	ib4xFX	up	down	0
<input type="radio"/>	5/7	5/7	ib4xFX	up	down	0
<input type="radio"/>	5/8	5/8	ib4xFX	up	down	0
<input type="radio"/>	5/9	5/9	ib4xFX	up	down	0
<input type="radio"/>	5/10	5/10	ib4xFX	up	down	0
<input type="radio"/>	5/11	5/11	ib4xFX	up	down	0
<input type="radio"/>	5/12	5/12	ib4xFX	up	down	0

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Figure 5-13: Chassis Manager Ports Window

7. View the **Admin Status** and the **Oper Status** of the ports. The Admin Status refers to the state that the admin has chosen the port to be. The Oper Status refers to the actual state of the port. For example, an admin may have selected a state of “Up” for a port, but the Oper Status would display “down” if a cable had not been connected to the port.
8. Click the radio button next to a port whose details you want to view.
9. Click the **Properties** button.
The **Port Properties** dialog box appears.

Port Properties:

Port: 5/3

Name: 5/3

Type: ib4xFX

Admin Status: up down

Oper Status: down

Auto Negotiation Supported: true

Auto Negotiation: Enable

Set Port Speed: 2500M 10G 30G

Current Speed: unknown

MTU: 0

Last Changed On: none

Apply Reset Close Help

Figure 5-14: Chassis Manager Port Properties Dialog Box

Monitor the Power Supplies

1. Launch the Chassis Manager by entering the IP address of the InfiniBand switch into your web browser.
2. Log into the chassis.
3. The **Device Rear View** and the **Device Front View** appear.
4. View the Power Supply status at the top of the window to quickly check the status color and the number of modules installed.
 - If only one number appears, then only one power supply is installed. The actual integer refers to the slot in which the power supply module is installed. A field that read Power Supplies: 1 | 2 would indicate that a power supply was installed in both possible slots.
 - The color of the integer indicates the status of the power supply. A green number indicates that the power supply is Up. A red number indicates that the power supply has failed.
5. Click on **Power Supplies** at the top of the window to view details.

The **Power Supplies** view appears.

TOPSPIN® IP Address: 10.3.108.4 Cards: 6 | 11 | 13 | 15 | 17
System Name: Topspin-270 Power Supplies: 2
Support Contact: support@topspin.com Fans: 1 | 2

10.3.108.4
Chassis
Cards
Ports
Power Supplies
Fans
Sensors
Backplane
Management Ports
Maintenance
InfiniBand
Help

Power Supplies

10.3.108.4 > Health > Power Supplies

Refresh

PS ID	Type	Current Status	Utilization (%)	Voltage
2	ac	up	0	48

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Figure 5-15: Chassis Manager Power Supplies Window

Monitor the Fans

1. Launch the Chassis Manager by entering the IP address of the InfiniBand switch into your web browser.
2. Log into the chassis.
3. The **Device Rear View** and the **Device Front View** appear.
4. View the Fan status at the top of the window to quickly check the status color and the number of modules installed.
 - If only one number appears, then only one fan is installed. The actual integer refers to the slot in which the fan module is installed. A field that read **Fans: 1 | 2** would indicate that a fan trays are installed in both slots.
 - The color of the integer indicates the status of the fan. A green number indicates that the fan is Up. A red number indicates that a fan has failed.
5. Click on the word **Fans** at the top of the window to view details.
The **Fans** view appears.

TOPSPIN® IP Address: 10.3.108.4 Cards: 6 | 11 | 13 | 15 | 17
System Name: Topspin-270 Power Supplies: 2
Support Contact: support@topspin.com Fans: 1 | 2

10.3.108.4
Chassis
Cards
Ports
Power Supplies
Fans
Sensors
Backplane
Management Ports
Maintenance
InfiniBand
Help

Fans

10.3.108.4 > Health > Fans

Refresh

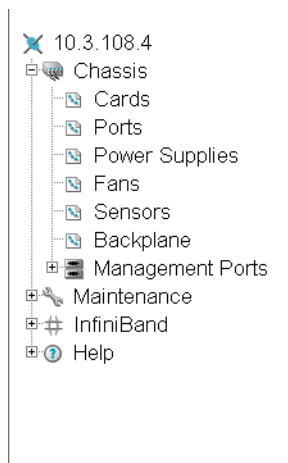
Fan ID	Current Status	Speed (%)
1	up	74
2	up	70

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Figure 5-16: Chassis Manager Fans Window

Monitor the Temperature

1. Launch the Chassis Manager by entering the IP address of the InfiniBand switch into your web browser.
2. Press the Enter key.
3. The **Device Rear View** and the **Device Front View** appear.
4. Click open the **Chassis** file in the left-navigation tree.
The individual components appear beneath the Chassis menu.
Click **Sensors** in the left-navigation tree.
The Sensors window appears.



Sensors

10.3.108.4 > Health > Sensors

Refresh

Slot ID	Sensor ID	Current Status	Oper Code	Current Temp (c)	Alarm Temp (c)	Shutdown Temp (c)
10	1	up	normal	58	91	98
11	1	up	normal	56	91	98
12	1	up	normal	57	91	98
13	1	up	normal	59	91	98
15	1	up	normal	34	65	75
16	1	up	normal	34	65	75

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Figure 5-17: Chassis Manager Sensors Window

5. Verify that the sensor is Up by checking the **Current Status** column.
6. Compare the **Current Temp (c)** column to the **Alarm Temp** and **Shutdown Temp** columns.
The **Current Temp** should be lower than the **Alarm Temp**. The **Shutdown Temp** indicates the degree in celsius (at sea level) at which the switch will reboot.
Each slot is monitored with individual sensors. The Alarm and Shutdown temperatures vary depending on the slot.

Monitoring the System with Element Manager

For information regarding installing the optionally licensed Element Manager GUI, refer to the *InfiniBand User Guide*.

1. Launch the Element Manager.
2. Select **Health > Status**. The Health Status window opens.

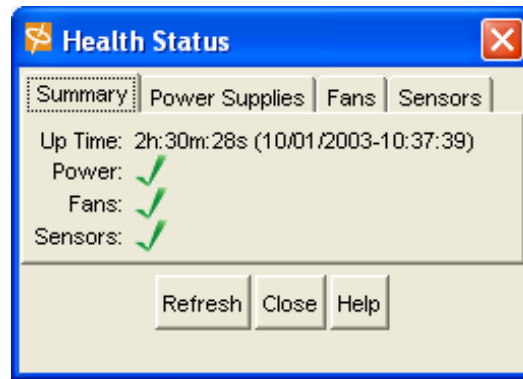


Figure 5-18: Element Manager Summary Tab

Interpreting the Summary Tab

3. Use the **Summary** tab to view the status of the Power, Fans, and Temperature Sensors at once.

Interpreting the **Power** Field:

- A green check next to the **Power** summary indicates that at least one power source is connected and functioning properly.
- A red check mark indicates that power supply AC is disconnected.

Interpreting the **Fans** field:

- A green check next to the Fans summary indicates at least one fan is present, and functioning properly.
- A red check indicates a fan failure.

Interpreting the **Sensors** field:

- A green check next to the Sensors summary indicates that the system temperature is at an acceptable level.
- A red check for Sensor is a warning of high temperature.

Interpreting the Power Supplies Tab

Use the **Health > Status > Power Supplies** tab to view the operating status of the power supplies.

PslId	Type	OperStatus	Utilization	Voltage	ProductSerialNum	PcaSerialNum	PcaAssemblyNum	FruNum
1	ac	up	n/a	12	n/a	n/a	n/a	n/a

Figure 5-19: Element Manager Power Supplies Tab

Interpreting the Fans Tab

Use the **Health > Status > Fans** tab to view the operating status of the fans.

FanId	OperStatus	Speed	ProductSerialNum	PcaSerialNum	PcaAssemblyNum	FruNum
1	up	68	n/a	n/a	n/a	n/a
2	up	74	n/a	n/a	n/a	n/a
3	up	68	n/a	n/a	n/a	n/a

Figure 5-20: Element Manager Fans Tab

4. Note the **OperStatus** field. A status of “up” means that the fan is operating properly.
5. Note the **Speed** field. The integer in this field represents a percentage. The percentage changes based on the ambient temperature of the unit, and will increase as the temperature rises.

Interpreting the Sensors Tab

Use the **Health > Status > Sensors** tab to view the operating status of the temperature sensor of the system.

Slot ID	Sensor ID	Oper Status	Oper Code	Current Temp (c)	Alarm Temp (c)	Shutdown Temp (c)
9	1	up	normal	39	75	85
11	1	up	normal	35	75	85
12	1	up	normal	37	75	85
14	1	up	normal	34	75	85
15	1	up	normal	41	70	80
16	1	up	normal	40	70	80

6 row(s)

Figure 5-21: Element Manager Sensors Tab

- Note the **OperStatus** field. A status of “up” indicates that the sensor is functioning properly.
- Note the **Temperature** field. Each slot has an individual temperature sensor. The Alarm and Shutdown temperatures vary by slot type.

Monitor the System With the CLI

For a complete list of CLI commands, refer to the *CLI Reference Guide*.

Use the following CLI commands to monitor the Power Supplies, the fans, and the sensors:

Monitor the Power Supplies

- show power-supply**

Example

```
Topspin-270> show power-supply
```

```
=====
Power-supply Information
=====
```

```
ps      type      oper-status  utilization  voltage
-----
```

```
1       AC       up           n/a         48
2       AC       down        n/a         48
-----
```

```
=====
Power-supply Seeprom
=====
```

```
ps      product  pca        fru
serial-number  serial-number  number      number
-----
```

```
1       -        -          -          -
2       -        -          -          -
-----
```

Monitor the Fans

- show fan**

An **oper-status** of “up” means that the blower is operating correctly within the fan unit.

Note the **Speed** field. The integer in this field represents a percentage. The percentage changes based on the ambient temperature of the unit, and will increase as the temperature rises.

Example

```
Topspin-270> show fan
```

```
=====
                          Fan Information
=====
fan  oper-status  speed(%)
-----
1    up          76
2    up          77
3    up          74
4    up          77
=====

                          Fan Seeprom
=====
fan  product      pca          pca          fru
    serial-number serial-number number      number
-----
1    -           -           -           -
2    -           -           -           -
3    -           -           -           -
4    -           -           -           -
=====
```

Monitor the Sensors

- **show sensor**

Example

```
Topspin-270# show sensor
```

```
=====
                          Sensor Information
=====
sensor oper-status oper-code  temperature(c)  alarm-temp(c)  shutdown-temp(c)
-----
10/1   up           normal    35             75             85
11/1   up           normal    31             75             85
12/1   up           normal    29             75             85
13/1   up           normal    31             75             85
15/1   up           normal    38             70             80
16/1   up           normal    37             70             80
=====
```

Note the **Temperature** field. The temperature is displayed in Celsius. The system's maximum external ambient temperature is 30 degrees C (0 – 10,000 ft). Acceptable internal temperature ranges are 30 degrees C above external ambient, plus 1 degree for every 1,000 ft above sea-level. The acceptable temperatures for the Topspin 270 varies depending on the card that is being monitored.

Hardware Diagnostic Tests

This chapter describes how to run diagnostic tests on the Topspin 270 system hardware.

- [“About Diagnostic Tests” on page 89](#)
- [“Displaying Hardware Errors” on page 99](#)

About Diagnostic Tests

Hardware diagnostic tests can be performed through the CLI or the Element Manager GUI. Refer to the *Element Manager User Guide* for instruction on running tests in with the Java GUI. A Power-On Self Test (POST) is run automatically on various components at power-on.

The following examples refer to running tests and displaying test with the CLI. For complete diagnostic command information, refer to the *Command Line Reference Guide*.

LED Tests

LED tests allow you to blink a particular LED to more easily identify a specific component in a rack.

Self Tests

The Topspin 270 provides the following diagnostic tests:

- Card Test [page 90](#)
- Chassis Test [page 92](#)
- Fan Test [page 94](#)
- Interface Test
- Power Supply [page 96](#)
- Rack-Locator

Run Card Tests

References to “Cards” refers to fabric controllers, management I/O modules, node cards and the chassis ID module. Fans and power supplies are not included in the Card tests; they can be tested through the standard chassis test ([page 93](#)), or as individual components.

The following tests are available to locate and diagnose one or more cards in the chassis:

- LED
- Self-test [page 90](#)

Run a Card Self-Test

To perform a diagnostic self-test on a card:

1. Enter the **diag card #** command.
You cannot stop the card test once it has begun.

Example

```
Topspin-270> enable
Topspin-270# config
Topspin-270 (config)# diag card 11
Topspin-270 (config-diag-card-11)# test self-test
Topspin-270 (config-diag-card-11)# start
Topspin-270 (config-diag-card-11)# exit
Topspin-270 (config)# exit
```

2. Exit the test to view the progress of the test.
The test takes approximately 5 - 8 minutes.

Example of test in progress

```
Topspin-270# show diagnostic card 11
=====
Diagnostic Tests For Cards
=====
      test : self-test
    slot-id : 11
  iterations : 1
      action : start
      result : In progress
percentage-completed : 0
      result-string :
```

Example of completed test

```
Topspin-270 (config-diag-card-11)# exit  
Topspin-270 (config)# exit  
Topspin-270# show diagnostic card 11
```

```
=====
```

```
                                Diagnostic Tests For Cards
```

```
=====
```

```
        test : self-test  
        slot-id : 11  
        iterations : 1  
        action : start  
        result : success  
percentage-completed : 100  
        result-string : Card Test, Final report : PASSED; Please reboot  
system
```

- Use the `more file-system:file-name` command to display the log file and view the detailed results of the `diag` test.

Example of log results

```

Topspin-270# more syslog:hwif_log
Thu Mar  4 10:57:49 2004: POST: SEEPROM: PASSED
Thu Mar  4 10:57:49 2004: POST: FPGA: PASSED
Thu Mar  4 10:57:49 2004: POST: SUMMIT: PASSED
Thu Mar  4 10:57:50 2004: POST: RTC: PASSED
Thu Mar  4 10:57:54 2004: POST: FAN: PASSED
Thu Mar  4 10:57:54 2004: card_startup.x : card is starting up
Thu Mar  4 10:57:54 2004: Anafa2Init: a2update set to IGNORE
Thu Mar  4 10:58:16 2004: Anafa2 POST: firmware check PASSED
Thu Mar  4 19:01:55 2004: POST: SEEPROM: PASSED
Thu Mar  4 19:01:55 2004: POST: FPGA: PASSED
Thu Mar  4 19:01:55 2004: POST: SUMMIT: PASSED
Thu Mar  4 19:01:56 2004: POST: RTC: PASSED
Thu Mar  4 19:02:00 2004: POST: FAN: PASSED
Thu Mar  4 19:02:00 2004: card_startup.x : card is starting up
Thu Mar  4 19:02:00 2004: Anafa2Init: a2update set to IGNORE
Thu Mar  4 19:03:56 2004: POST: SEEPROM: PASSED
Thu Mar  4 19:03:56 2004: POST: FPGA: PASSED
Thu Mar  4 19:03:57 2004: POST: SUMMIT: PASSED
Thu Mar  4 19:03:58 2004: POST: RTC: PASSED
Thu Mar  4 19:04:02 2004: POST: FAN: PASSED
Thu Mar  4 19:04:02 2004: card_startup.x : card is starting up
Thu Mar  4 19:04:02 2004: Anafa2Init: a2update set to IGNORE
Thu Mar  4 19:04:23 2004: Anafa2 POST: firmware check PASSED
Thu Mar  4 19:07:07 2004: POST: SEEPROM: PASSED
Thu Mar  4 19:07:07 2004: POST: FPGA: PASSED
Thu Mar  4 19:07:07 2004: POST: SUMMIT: PASSED
Thu Mar  4 19:07:08 2004: POST: RTC: PASSED
Thu Mar  4 19:07:12 2004: POST: FAN: PASSED
Thu Mar  4 19:07:12 2004: card_startup.x : card is starting up
Thu Mar  4 19:07:12 2004: Anafa2Init: a2update set to IGNORE
Thu Mar  4 19:07:34 2004: Anafa2 POST: firmware check PASSED
Fri Mar  5 16:19:48 2004: POST: SEEPROM: PASSED
Fri Mar  5 16:19:48 2004: POST: FPGA: PASSED
Fri Mar  5 16:19:48 2004: POST: SUMMIT: PASSED
Fri Mar  5 16:19:49 2004: POST: RTC: PASSED
Fri Mar  5 16:19:53 2004: POST: FAN: PASSED
Fri Mar  5 16:19:53 2004: card_startup.x : card is starting up
Fri Mar  5 16:19:53 2004: Anafa2Init: a2update set to IGNORE
Fri Mar  5 16:20:15 2004: Anafa2 POST: firmware check PASSED
Fri Mar  5 16:21:54 2004: POST: SEEPROM: PASSED
Fri Mar  5 16:21:54 2004: POST: FPGA: PASSED
<output truncated>

```

- Enter `reload` to reboot the switch after the test is complete. If you do not reboot the switch after running the self-test, the switch will remain in an unknown state.

Run Chassis Tests

The following tests are available to locate and diagnose the chassis:

- LED

- Standard [page 93](#)
- Extended
- Extended Memory

Run a Chassis Standard Test

The chassis standard diag test runs a diagnostic test on all cards in the chassis.

1. Enter the **diag chassis test standard** and **start** commands to initiate the test.

Example

```
Topspin-270> enable
Topspin-270# config
Topspin-270 (config)# diag chassis test standard
Topspin-270 (config-diag-chassis)# start
Topspin-270 (config-diag-chassis)#
```

2. Enter the **show diag chassis** command to show the status of the diag test.

Example

```
Topspin-270 (config-diag-chassis)# exit
Topspin-270 (config)# exit
Topspin-270# show diag chassis
=====
                          Diagnostic Tests For Chassis
=====
      module-type : chassis
      module-number : 1
           test : standard
      iterations : 1
           option : none
           action : start
           result : success
percentage-completed : 100
      result-string : Standard System Test Completed, Final report : Passed=1,
Failed=0, Total=1

Topspin-270#
```

3. Enter the **show diag post** command to show any errors on individual components.

Example

```

Topspin-270# show diag post
=====
                               Post Status
=====
fru-slot      post-status    error-codes
-----
card(1)       passed         0:0:0:0
card(2)       passed         0:0:0:0
card(7)       passed         0:0:0:0
card(8)       passed         0:0:0:0
card(9)       passed         0:0:0:0
card(10)      passed         0:0:0:0
card(11)      passed         0:0:0:0
card(12)      passed         0:0:0:0
card(13)      passed         0:0:0:0
card(14)      passed         0:0:0:0
card(15)      passed         0:0:0:0
card(17)      passed         0:0:0:0
fan(1)        passed         0:0:0:0
fan(2)        passed         0:0:0:0
fan(3)        passed         0:0:0:0
fan(4)        passed         0:0:0:0
power-supply(1) passed         0:0:0:0
power-supply(2) passed         0:0:0:0

```

Run Fan Tests

The following tests are available to locate and diagnose fan modules:

- LED
- Self-Test [page 94](#)

Run a Self-Test on a Fan

1. Identify the number of the fan you want to diagnose, if you do not already know the number.
 - a. Enter the **show fan** command.

Example

```

Topspin-270> enable
Topspin-270# show fan
=====
                               Fan Information
=====
fan   oper-status  speed(%)
-----
1     up           74
2     up           70
3     up           89
4     up           87

```

2. Enter the **diag fan <id>** command.

Example

```

Topspin-270# config
Topspin-270(config)# diag fan 1
Topspin-270(config-diag-fan-1)# test self-test
Topspin-270(config-diag-fan-1)# start
Topspin-270(config-diag-fan-1)# exit
Topspin-270(config)# exit
Topspin-270# show diag fan
=====
                                Diagnostic Tests For Fan
=====
    module-type : fan
    module-number : 1
        test : self-test
    iterations : 1
        action : start
        result : in-progress
percentage-completed : 70
    result-string : Self Test, Current report : In progress...
Topspin-270#

```

3. Use the **show diag fan** command to show the progress of the test.

Example

```

Topspin-270(config-diag-fan-1)# exit
Topspin-270(config)# exit
Topspin-270# show diag fan
=====
                                Diagnostic Tests For Fan
=====
    module-type : fan
    module-number : 1
        test : self-test
    iterations : 1
        action : start
        result : in-progress
percentage-completed : 70
    result-string : Self Test, Current report : In progress...
Topspin-270#

```

- Use the **show diag fru-error** command to display any errors that appear in the result-string.

Example

```

Topspin-270# show diag fru-error
=====
                                Fru-Error
=====
fru-slot          fru-error
-----
card(1)           none
card(2)           none
card(7)           none
card(8)           none
card(9)           none
card(10)          none
card(11)          none
card(12)          none
card(13)          none
card(14)          none
card(15)          none
card(17)          none
fan(1)            none
fan(2)            none

```

- Reboot the chassis when the self-test is complete.

Example

```

Topspin-270# reload
System configuration is modified. Save? [yes(default) | no | filename] y
Proceed with reload? [yes(default) | no] y

```

Run Power Supply Tests

The following tests are available to locate and diagnose fan modules:

- LED [page 96](#)
- Self-Test [page 97](#)

Run a LED Test on the Power Supply

Use the LED test to blink the LED and identify a specific power supply.

Example

```

Topspin-270> enable
Topspin-270# config
Topspin-270 (config)# diag power-supply 1
Topspin-270 (config-diag-power-supply-1)# test led
Topspin-270 (config-diag-power-supply-1)# start
Topspin-270 (config-diag-power-supply-1)# stop
Topspin-270 (config-diag-power-supply-1)#

```


Run a Self-Test on a Power Supply

1. Show the ID of the power supply that you want to diagnose, if you do not already know the number.
 - a. Enter the **show power-supply** command.

Example

```
Topspin-270# show power-supply
=====
Power-supply Information
=====
ps      type      admin-status  oper-status  utilization  voltage
-----
1       AC        up            up           n/a          48
2       AC        up            up           15           47
```

2. Enter the **diag power-supply <id>** command and specify the type of test (self-test is chosen by default).

Example

```
Topspin-270> enable
Topspin-270# config
Topspin-270 (config)# diag power-supply 2
Topspin-270 (config-diag-power-supply-2)# test self-test
```

3. Start the test.

Example

```
Topspin-270 (config-diag-power-supply-2)# start
```

4. Use the **show diag fan** command to show the progress of the test.

Example

```
Topspin-270 (config-diag-power-supply-2)# exit
Topspin-270 (config)# exit
Topspin-270# show diag power-supply
=====
Diagnostic Tests For Power Supply
=====
module-type : power-supply
module-number : 2
test : self-test
iterations : 1
action : start
result : success
percentage-completed : 100
result-string : Self Test, Final report : PASSED; Please reboot syst
em
Topspin-270#
```

- Use the **show diag fru-error** command to display any errors that appear in the result-string.

Example

```

Topspin-270# show diag fru-error
=====
                                Fru-Error
=====
fru-slot          fru-error
-----
card(9)           none
card(10)          none
card(11)          none
card(12)          none
card(13)          none
card(14)          none
card(15)          none
card(17)          none
fan(1)            none
fan(2)            none
fan(3)            none
fan(4)            none
power-supply(1)  none
power-supply(2)  none
Topspin-270#

```

- Reboot the chassis when the self-test is complete.

Example

```

Topspin-270# reload
System configuration is modified. Save? [yes(default) | no | filename] y
Proceed with reload? [yes(default) | no] y

```

Displaying Hardware Errors

To display POST results, non-fatal errors that can be recovered, informational logging (such as firmware updates), and hardware errors:

1. Use the **more syslog:hwif_log** command to locate the:
/topspin/log/hwif_log

Example of output without errors

```
Topspin-270> enable
Topspin-270# more syslog:hwif_log
Thu Mar  4 10:57:49 2004: POST: SEEPROM: PASSED
Thu Mar  4 10:57:49 2004: POST: FPGA: PASSED
Thu Mar  4 10:57:49 2004: POST: SUMMIT: PASSED
Thu Mar  4 10:57:50 2004: POST: RTC: PASSED
Thu Mar  4 10:57:54 2004: POST: FAN: PASSED
Thu Mar  4 10:57:54 2004: card_startup.x : card is starting up
Thu Mar  4 10:57:54 2004: Anafa2Init: a2update set to IGNORE
Thu Mar  4 10:58:16 2004: Anafa2 POST: firmware check PASSED
Thu Mar  4 19:01:55 2004: POST: SEEPROM: PASSED
Thu Mar  4 19:01:55 2004: POST: FPGA: PASSED
Thu Mar  4 19:01:55 2004: POST: SUMMIT: PASSED
Thu Mar  4 19:01:56 2004: POST: RTC: PASSED
Thu Mar  4 19:02:00 2004: POST: FAN: PASSED
Thu Mar  4 19:02:00 2004: card_startup.x : card is starting up
Thu Mar  4 19:02:00 2004: Anafa2Init: a2update set to IGNORE
<output truncated>
```

You can also view POST error codes with the **show diagnostic post** command. This command displays the results of each POST that executed at power-on.

Example

```
Topspin-270# show diagnostic post
```

```
=====
                                Post Status
=====
fru-slot          post-status      error-codes
-----
card(1)           failed          1:0:0:0
fan(1)            passed          0:0:0:0
fan(2)            passed          0:0:0:0
power-supply(1)  passed          0:0:0:0
```

To view FRU errors on your Topspin 270, enter the **show diagnostic fru-error** command.

Example

```
Topspin-270# show diagnostic fru-error

=====
                                Fru-Error
=====
fru-slot          fru-error
-----
card(1)           _FRU_POWER_CONTROLLER_CONFIG_ERR
fan(1)            none
fan(2)            none
power-supply(1)  none
```

Error Types

The following types of hardware errors are logged for the Topspin 270 baseboard:

Table 6-1: Topspin 270 Baseboard Errors

Error Number	Description
1	Summit Power Controller Configuration Error
2	I2C Communication Error
3	Serial EEPROM Error
4	DiskOnChip Error
5	Memory Error
6	March SSO Error
7	Realtime Clock Error
8	Fan Error
9	FPGA Error
10	Summit High Temp Error
12	Summit High Current Error
14	Summit Voltage Out of Range Error
16	Firmware Error on the switch chip
17	Bus error on switch chip
18	ID Module Error
19	Management Module Error

The following types of hardware errors are logged for the Topspin 270 power supply:

Table 6-2: Topspin 270 Power Supply Errors

Error Number	Description
1	Power Supply DC Fail Error

Table 6-2: Topspin 270 Power Supply Errors

Error Number	Description
2	Power Supply Fan Fail Error
3	Power Supply I2C Communication Error

Specifications and Compliance Certifications

This chapter details the Topspin 270 specifications and compliance certifications.

Chassis and Management Interface

Table 7-1: Chassis and Management General Specifications

Operating Temperature Ranges	0 to 40C
Operating Temperature	0 to 42C
Non-Operating Temperature	-40 to 70C
Operating Temperature Gradient	20C max. per 60 minutes
Operating Altitude	0 to 10,000 ft
Non-Operating Altitude	0 to 40,000 ft
Operating Humidity:	8 to 80% non-condensing
Non-Operating Humidity:	5 to 90% RH at 65C for 24 hrs., Non-condensing
Operating Humidity Gradient	10% maximum per 60 min.
Operating Shock	5G max., 11ms half-sine wave., 10G max. 5ms half-sine wave
Non-Operating Shock	10G max., 11ms half-sine wave.
Operating Vibration, Sinusoidal	0.25G max., 3-200Hz 15min.
Non-Operating Vibration, Sinusoidal	0.50G max., 3-200Hz 15min.
Operating Vibration, random	1.02Grms, 3-axis, bottom/top, left/right, front/back

Table 7-1: Chassis and Management General Specifications

Operating Temperature Ranges	0 to 40C
Non-Operating Vibration, random	2.09Grms, 3-axis, bottom/top, left/right, front/back
Max. Operating Inclination	15 degrees

Electrical Specifications

Table 7-2: Electrical Specifications

Category	Specification
AC Input	Auto-ranging 90-264VAC, 47-63Hz.
Maximum Power consumption	<600 Watts

EMC/Immunity

Table 7-3: EMC/Immunity

Description
FCC; CFR 47 Part 15, Subpart B Class A
ICES-003 Issue 2
EN 61000-3-2 (Harmonics), EN 61000-3-3 (Flicker), EN 55022: 1998, EN 55024:1998;
EN 61000-4-1,2,3,4,5,6,8,11
Japan: VCCI-V3/02.04

Safety

Table 7-4: Safety

Description
UL60950, 3rd ed.
CSA 22.2 No. 60950:2000
IEC60950, EN60950, EN60825-1 and EN60825-2

Acoustics

Table 7-5: Acoustics

Country Deployment	Description
Sound Pressure	37dB at 25C ambient ISO 7779 and section 8.5 of ISO 3744:1994(E)
Sound Power	50dB at 25C ambient ISO 7779, section 8.6 of ISO 3744:1994(E)

Product Markings

- UL, FCC Statement, VCCI, CE, ICES

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